BUSINESS SCREEN

Visualizing Factory Safety

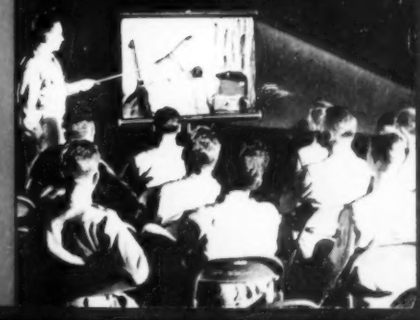
No. 6 1944 • THE NATIONAL MAGAZINE OF VISUAL AIDS TO INDUSTRY & EDUCATION

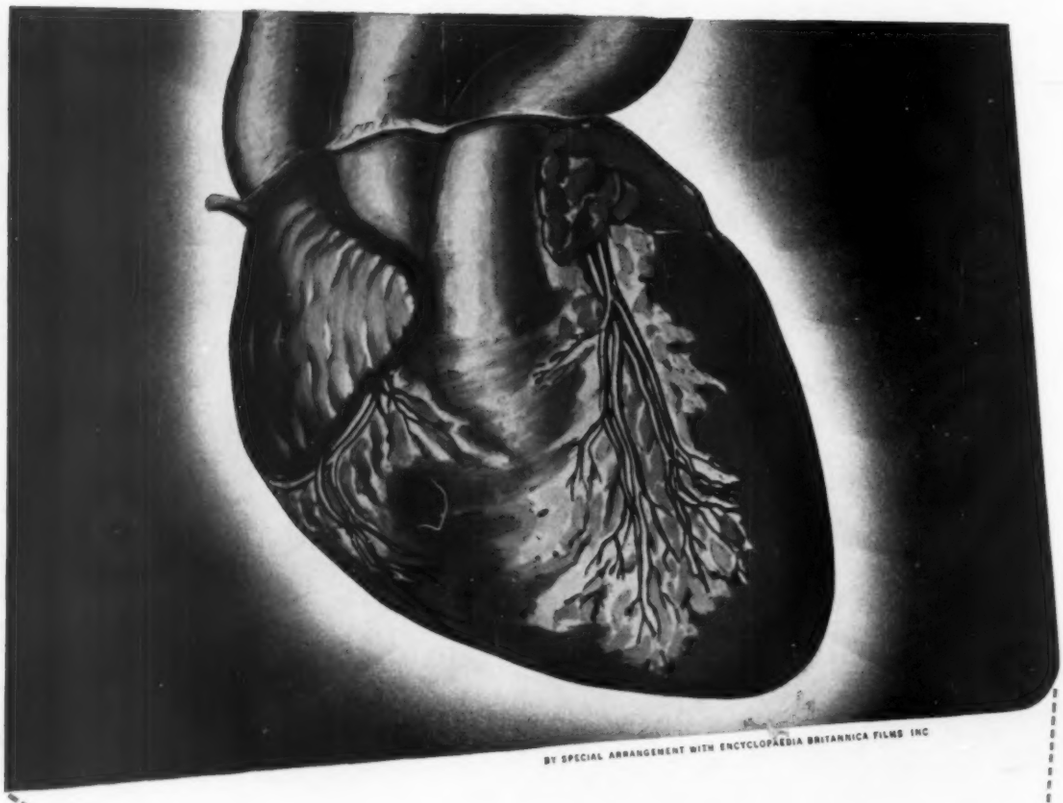
Safe Use of Hand Tools

War Reports to Workers

Canada's Industrial Circuit

New War Training Visuals





BY SPECIAL ARRANGEMENT WITH ENCYCLOPAEDIA BRITANNICA FILMS INC

HAVE YOU SEEN OR HEARD A *Heart Beat?*

Witnessing a great miracle of science need no longer be denied anyone. The skill and knowledge of great men of science, once available to only a few, is now being recorded by 16mm Sound Motion Pictures. Victor Animatophone Equipment enables doctors, scientists, students, even the layman, to see and hear endless miracles analyzed in their own studies and laboratories — one of the many marvels of a new world to which Victor Animatophones have opened the doors.

VICTOR
REG. U.S. PAT. OFF.
16 MM

SIGHT SOUND SEQUENCE
THE WORLD'S GREATEST TRAINING FORCE

16mm SOUND MOTION PICTURE EQUIPMENT

Victor Animatograph Corporation

Home Office and Factory: DAVENPORT, IOWA
NEW YORK (18)—McGraw Hill Bldg., 330 W. 42nd St.
CHICAGO (1) 188 W. Randolph

Assure Victory By Buying War Bonds NOW!

INSPIRE YOUR WORKERS TO GREATER EFFORTS WITH THESE TWO NEW CASTLE 8mm 16mm BATTLE FILMS

1 FIGHT FOR ROME! AND RUSSIA'S *Mighty* OFFENSIVE!

(Both on One Film)

Land with the "Fighting Fifth" at Anzio! Watch stone and mortar belch skyward as terrific Allied barrages blast Cassino . . . See blazing ground and air action . . . earth-shaking artillery duels and devastating bombing attacks . . . A movie that will galvanize your workers into redoubled efforts!

See gigantic hammer-blows send Hitler's hordes reeling into the Balkans! Witness fearless fighters charging through shellfire . . . liquidating a Nazi tank crew . . . hurling destruction with massed rocket guns! Inspirational! Thrilling!

2 YANKS *Smash* TRUK! JAP "PEARL HARBOR" BLASTED!

Sail with dare-devil cameramen on ships of a mighty task force! Fly from a Flattop with an avenging armada of American airmen and see 200 Jap planes blasted from the skies . . . on your own screen! Watch enemy cruisers, destroyers, transports burst into flames as they are destroyed! Bomb into wreckage the great naval bastion of Truk. Your workers will thrill to this smashing American victory every time you show this epic movie!

FREE! Castle Films' De Luxe Catalog describing 98 home movies you can own!

CASTLE FILMS INC.

30 ROCKEFELLER PLAZA NEW YORK 20 | FIELD BLDG. CHICAGO 3 | RUSS BLDG. SAN FRANCISCO 4

WORLD'S LARGEST DISTRIBUTOR of 8mm — 16mm MOVIES

LOW COST!

8mm. 180 feet	$5.50
16mm. 360 feet	8.75
16mm. Sound 350 feet	17.50

Our business continues to grow each year on the solid foundation of sound analytical and creative service, quality of product and fair dealing.

As your post-war advertising, merchandising and training plans crystallize they will undoubtedly encompass the use of sound motion pictures. We will greatly appreciate your investigation of our organization, our product and particularly the degree of satisfaction of the clients we serve.

Wilding Picture Productions, Inc.

NEW YORK • CLEVELAND • DETROIT • CHICAGO • HOLLYWOOD

Keep Up the Fight!

FOR EDUCATION

FOR INDUSTRY

FOR OUR ARMED FORCES

MOTION PICTURES ARE SERVING ON EVERY FRONT

Today our armed forces are depending more than ever on motion pictures to help train men and women for the complex tasks of modern warfare.

A rapidly expanding library of silent and sound 16 mm. films is also in constant use for homes, industry and education—with new films being added daily.

Motion pictures are thus helping to speed the day when Ampro Projectors—now going 100% into the war effort—can be again used to bring to industry a new sales and training aid. Write for the latest Ampro catalog of 8 mm. silent and 16 mm. sound and silent projectors.

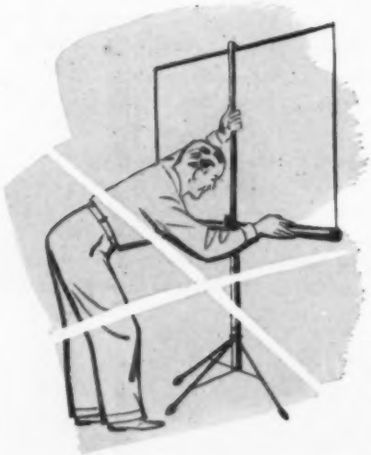
Buy War Bonds

AMPRO

AMPRO CORPORATION • CHICAGO 18, ILL. • PRECISION CINE EQUIPMENT

No Ripping of Fabric from Roller!

With the Challenger, it is impossible to tear the fabric from the roller in setting up the screen or adjusting the height. When the screen fabric reaches the fully open position, the extension support locks automatically into place.



No Stooping! No Guessing!

To raise the Challenger to desired height separate adjustments of case or picture area are not necessary. The exclusive inner-lifting device of the Challenger raises the case, roller and fully opened screen as one unit and thus eliminates stooping and guessing about correct screen proportions.

The DA-LITE CHALLENGER

is the Only Screen that Gives You These Important SAFETY FEATURES

THE exclusive slotted square tubing and smooth-operating inner-locking device in the Challenger Screen make this portable the easiest of all to set up and to adjust in height. It is a physical impossibility to rip the screen fabric from the roller on raising the Challenger to desired height. Lifting the Challenger doesn't pull the fabric further from the case and thus necessitate moving up the case separately. All that is necessary is to release the spring latch and raise the extension support. The complete unit (case and screen) is thereby raised to the desired height where it locks automatically. Positive and foolproof!

Only the Da-Lite Challenger offers these important *safety features* . . . The Challenger is one of many styles in the Da-Lite line of projection screens famous for quality for 34 years.

DA-LITE

Reg. U.S. Pat. Off.

DA-LITE SCREEN COMPANY, Inc.

Dept. 6-BS, 2723 No. Crawford Avenue, Chicago 39, Illinois

Quality Screens for 34 Years

NO SUBSTITUTE MATERIALS • • • NO SUBSTITUTE FOR EXPERIENCE

How To Save At Least Three Months

PROOF

If you want proof that Caravel Plans get results, check with

American Bible Society
American Can Company
American Viscose Corporation
The Bates Manufacturing Company
Bethlehem Steel Company
Black & Decker Manufacturing Company
The Borden Company
Cadillac Motors
Calco Chemical Company, Inc.
Cluett, Peabody & Company, Inc.
Dictaphone Corporation
E. I. duPont de Nemours
Eberhard Faber Pencil Co.
Ethyl Gasoline Corp.
Godfrey L. Cabot, Inc.
The B. F. Goodrich Company
Hart Schaffner & Marx
Jenkins Bros.
Johns-Manville Corporation
Kenwood Mills
Mohawk Carpet Mills, Inc.
National Biscuit Company
National Lead Company
Pepsi-Cola Co.
Remington Arms Company
Socony-Vacuum Oil Company, Inc.
Swift & Company
The Texas Company

OR ANY OTHER CARAVEL CLIENT

TRAINING A SALES FORCE and dealer organization to function at top efficiency is no small task—even in peace time.

Yet this is the task which many companies—yours, quite possibly, among them—must be ready to face when the signal comes for reconversion.

The course of least resistance is to wait until the surrender of the Axis Powers gives you the go-ahead.

But this will mean the loss of at least three months—and just as sure as shooting you'll be caught by your smart competitors flat-footed!

A better alternative—already adopted by a number of our clients—is to begin your planning NOW. By retaining people who know how to do the preliminary research . . . how to select the most useful training media for the purpose (whether motion pictures, slidefilms, manuals, or a combination of all three) . . . how to use these media to best advantage . . . how, in short, to build a completely integrated and continuing training program that will do the job.

Much of this work can be started now—without interfering with your war work in the slightest.

If you'd like to save months of needless delay and be ready to start when the signal flashes, write us today for suggestions as to a sound and practical procedure.

CARAVEL FILMS

INCORPORATED

New York • 730 Fifth Avenue • Tel. CIrcle 7-6112

ASK TO STUDY THESE

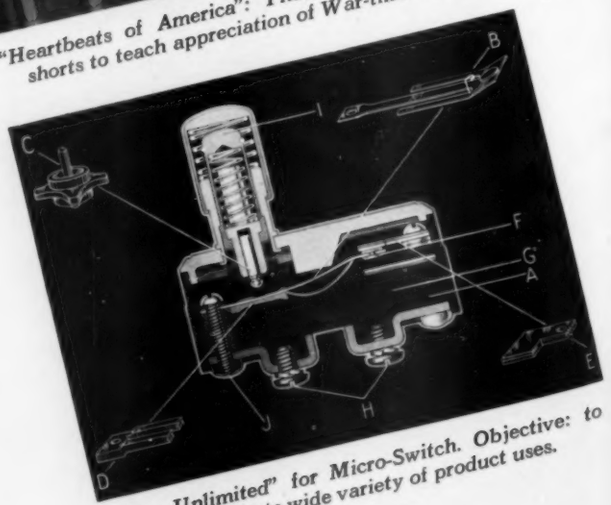
4

WAR EFFORT TECHNIQUES

for John Deere: War-time care of Farm Tractors.

U. S. Office of Education: 46 motion picture and slidefilm units. (Cut training time up to 30%).

"Heartbeats of America": Theatrically distributed shorts to teach appreciation of War-time living.



"Uses Unlimited" for Micro-Switch. Objective: to demonstrate wide variety of product uses.

SEE HOW NEW METHODS CAN INCREASE THE EFFECTIVENESS OF YOUR MOTION PICTURE PROGRAM, POST-WAR.....

Since 1942 almost all of our time, creative efforts, facilities and technical knowledge have been earnestly devoted to producing direct and associated War Effort motion pictures and slidefilms . . . for the Armed Services, for training industrial workers, for farm machinery conservation, for a better explanation of democratic life and its war-time problems.

The wide variety of subjects plus the need to get results have sharpened up our "know-how"; lead us to explore new ways to produce more effective pictures.

This added knowledge is at your service now. We suggest you contact us for further assistance in *your* motion picture or slidefilm program.

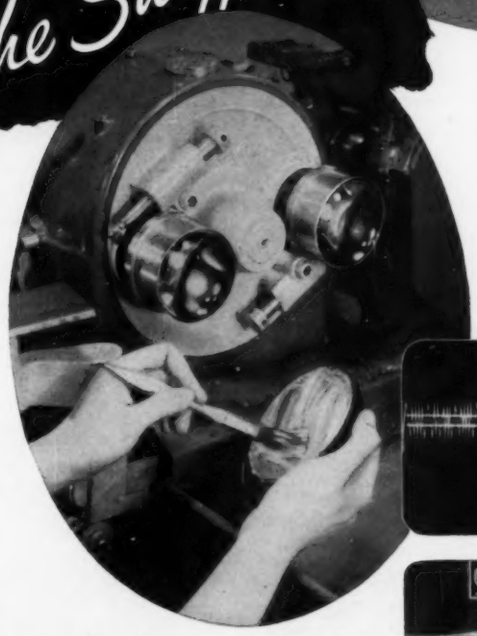
RAY-BELL FILMS, INC.

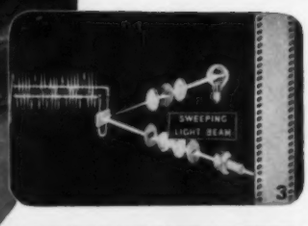
2269 FORD PARKWAY, ST. PAUL 1, MINNESOTA

Maybe you've only *Scratched the Surface!*

Scene from *Sky Raiders.* A Universal feature now available from the Filmosound Library for showing at approved non-theatrical locations.

1 →
Nearly every job at B&H takes a certain amount of technical skill. Even the most complex operations are taught faster, more efficiently, with movies.





Maybe you're not getting all you could out of your Filmosound Projector. Maybe you haven't yet discovered *all* the ways movies can help you do a better job.

May we tell you how we at Bell & Howell have put movies to work for us?

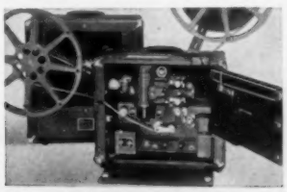
FILMOSOUND LIBRARY CAN HELP YOU

Thousands of excellent films—on almost any subject—are ready to help you get *more and better* results out of your use of B&H equipment. Send for the Filmosound Library Catalog.

Opti-onics
BELL & HOWELL

*Trade-mark Registered

*Opti-onics is OPTIcs . . . electrONics . . . mechanICS. It is research and engineering by Bell & Howell in these three related sciences to accomplish many things never before obtainable. Today Opti-onics is a WEAPON. Tomorrow, it will be a SERVANT . . . to work, protect, educate, and entertain.



Filmosound V ···—

is a B&H engineering triumph which maintains high performance standards despite restriction of critical materials. They're produced today *only* for the armed services and for other essential purposes according to prevailing government directives.

↑
2 We've had dramatic proof that recreation steps up the efficiency of our workers. Lunchtime movies are part of every B&H working day. The good old blood and thunder serials are especially enjoyed . . . and we happily hit on them as a way to cut absenteeism.

3 We tell customers the story of our products with movies. *How Motion Pictures Move and Talk* is a popular, easily understood explanation of the theory of the movies.

4 We help our customers take better care of their movie equipment by showing them our new film, *The Use and Care of the Filmosound.*

5 Movies have been helping us hire the right sort of people for many exacting jobs. *Help Win the War Faster* is a complete success as an employee recruiter.

6 We record all the grand good times our people have together. Golf tournaments and picnics . . . swimming parties, luncheons, dances . . . are all safely tucked away on film, for everybody to enjoy again and again.

There are other ways . . . many of them. And in the process of fitting movies to your problems, you'll find these ways. The important thing is simply not to be satisfied with your present uses of movies. Their possibilities are almost limitless. Keep exploring them.

Bell & Howell Company, Chicago; New York; Hollywood; Washington, D. C.; London. *Established 1907.*

Buy MORE War Bonds

Bell & Howell Company
1808 Larchmont Ave., Chicago 13
Please send Filmosound Library Catalog ( )
and new Filmosound V ···— Circular ( )

Company .....

Address .....

City ..... State .....

Requested by ..... BS 3-44

Products combining the sciences of OPTIcs • electrONics • mechanICS

PRECISION-MADE BY *Bell & Howell*

A man down in Australia saw a Burton Holmes film and promptly sent in his order for over a quarter of a million dollars worth of printing presses with the comment: "The film did the trick."

You see, the manufacturer was here in the States so it was a lot cheaper to send a film than a sample. The Burton Holmes files contain numerous testimonials to the effectiveness of their films in selling merchandise . . . in teaching . . . training personnel . . . demonstrating machinery and services.*

Right now our *biggest* job is helping to win the war. Motion pictures and slide films are major factors in training the armed forces in new skills and techniques.

Movies can help solve *your* war problems . . . help you win the peace by speeding reconversion. Just drop a line to us, we'll be glad to explain how we can help with your planning.

*Specific names of firms and their comments will be sent upon request.

BURTON HOLMES FILMS
Incorporated
7510 North Ashland Ave. Chicago 26
ROGers Park 5056

CAMERA EYE

LATE NEWS BRIEFS FROM THE FIELD

★ AS THIS MONTH'S ANSWER to careless talk by our contemporaries and other uninformed laymen, we are proud to present an original feature: the *Visual Industry News Letter*, which appears on page 21. These are *facts* by the men who *make* them. This is the *solid* ground of truth.

★ For other *facts*, see the recent authoritative comment by the War Department's Robert Patterson and by Secretary of the Navy, Frank Knox, both of whom are quoted on the *permanence* of a large segment of our Army and Navy post war. And add the *facts* about the immense post war educational job in Europe and other occupied lands to your thinking about the need for the visual medium and present visual equipment. There has been careless talk, hazardous to the economic well-being of thousands of skilled workmen in this industry about huge amounts of so-called war surpluses. The simple truth is there are *none* yet, may not be for years and in the meantime many, many thousands of projectors are badly needed by schools and industries who must wait only a little while longer until the important work of fully equipping our armed forces is completed.

★ In the first of two public appearances this month, the Editor of BUSINESS SCREEN appeared in April at the War Production Conference at the Stevens Hotel. Speaking on a program highlighted by the appearance of DeVry's dynamic young president, W. C. DeVry, we took note of the significant interest in the visual medium displayed by the several hundred Midwestern business leaders in attendance. Later in the month we appeared before the members of the Chicago Engineers Club, again speaking of the war and post war contributions of the visual medium to industry. These appearances will continue.

★ To the Ampro Corporation this month went the signal honor of providing the American Red Cross with one hundred and sixty 16mm arc projectors for use in veterans' hospitals. These 80 dual units will provide hours of priceless entertainment to our heroes from the fighting fronts with the same performance quality offered in deluxe theatres. —OHC

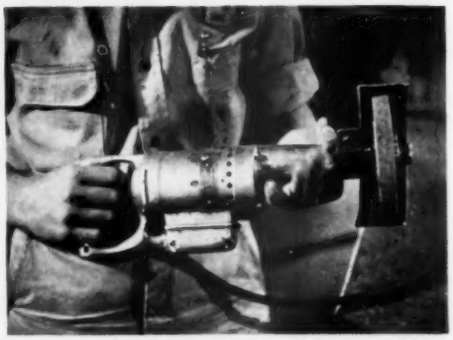
This Month's Cover

The camera study, Visualizing Factory Safety, *is by Harry Lange of Sarra, Inc., Chicago, photographed on the set of "For Safety's Sake," latest Sarra safety production. In the column at right are items of current editorial interest appearing in this edition of* BUSINESS SCREEN.

* * *

Issue Six, Volume Five of Business Screen, The National Magazine of Visual Aids to Industry and Education. Issued by Business Screen Magazines, Inc., 157 East Erie Street, Chicago 11, Illinois on April 29, 1944. O. H. Coelln, Jr., Editor; E. T. Lundgren, Production Director. Subscription: $2.00 for 8 consecutive numbers (one complete volume); Foreign and Canada $3.50, including duty. Entire Contents Copyright 1944 by Business Screen Magazines, Inc. No editorial material may be reproduced without the express permission of the publishers. Special permission will be granted to educational and trade journals on written request. Trademark Reg. U. S. Patent Office.

FOR SAFETY'S SAKE



Get this new sound motion picture on the Safe Handling of Portable Power Tools!

"For Safety's Sake"

Produced by Sarra, Inc., with the cooperation of the National Safety Council. Now available in 16mm sound-on-film for purchase at $52.50 F.O.B. Chicago.

Highlights From the Film!

Here are some of the important safety points covered in this 2-reel sound motion picture!

DRILLS: Clamp firmly in vise while drilling.

GRINDERS: Grip it firmly; keep moving wheel away from body. Protect eyes. Use proper grinder wheel for each type of job. Correct manner of mounting grinder wheel. Hazards in using cracked grinder wheels.

SAWS: Automatic guards. Forcing saws. Cautions in safe handling of saw blade. Explanation of trigger type switch. Holding work in hand.

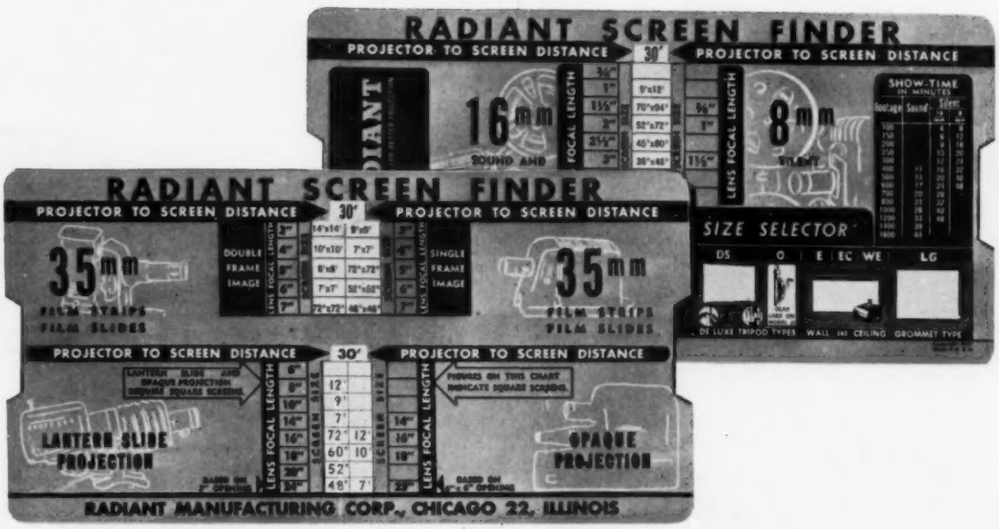
ALL ELECTRICAL TOOLS: Grounding the the tool. Proper handling and care. Proper methods of carrying. Repair.

PLUS: Ten commandments of safe handling of power tools from the National Safety Council—dramatically portrayed!

Get it today—write or wire

SARRA, INC.
16 East Ontario St., Chicago
18 East Fiftieth St., New York

for Perfect Projection . . .



use this remarkable new

RADIANT Screen Finder

Here's a practical new SLIDE RULE that every user of motion pictures, slide films, slides or opaque projectors urgently needs. Enables user to combine proper equipment and obtain maximum effectiveness from all types of projected visual aids. Shows at a glance:

1. **The proper screen size** for each distance between screen and projector with a given lens.
2. **The proper screen model to select.**
3. **The proper distance between screen and projector** to obtain any desired size of picture.
4. **The proper lens to use** to obtain perfect results for each distance.

RADIANT

BETTER SCREENS FOR BETTER PROJECTION

Visual authorities who have seen this Radiant Screen Finder are enthusiastic about its ability. Easy to read—simple to operate. Answers all "movie" questions on one side—all "still" questions on the other side. Durable and compact—fits into the vest pocket. Available from your visual equipment supplier. If he cannot supply you—send us his name and only 50¢ to cover actual cost, including handling and mailing—and a Screen Finder will be mailed to you direct.

IMMEDIATE DELIVERY ON RADIANT METAL SCREENS

Here's good news! Institutions, Industrial Concerns, War Industries, National Organizations may now again obtain RADIANT Metal Screens—without red tape. You can get immediate delivery under your M. R. O. Rating. W. P. B. FORMS ARE NO LONGER NECESSARY. ORDER TODAY!

SEND FOR 1944 SCREEN CATALOG

Mail coupon for latest Radiant Screen Catalog. Gives full details, prices and specifications of screens for every purpose: tripod, ceiling, wall, wall and ceiling, and table models from 30" x 40" to 20' x 20'.

The Radiant Mfg. Corp.,
1175 W. Superior Street, Chicago, Ill.
Gentlemen:
☐ I enclose _____ for _____ Screen Finders (50¢ ea.)
☐ Please send me latest Radiant Catalog.
Name_____
Address_____
City_____ State_____

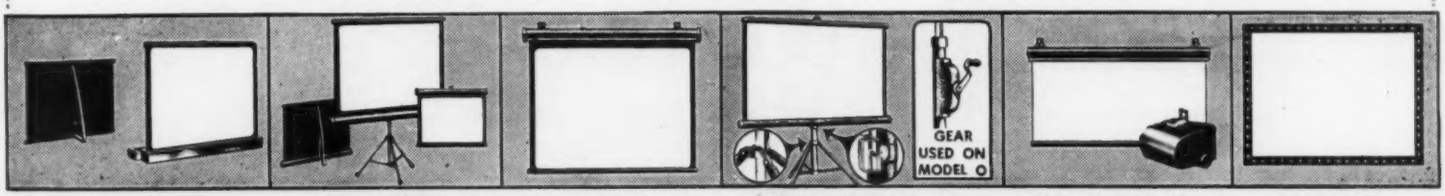
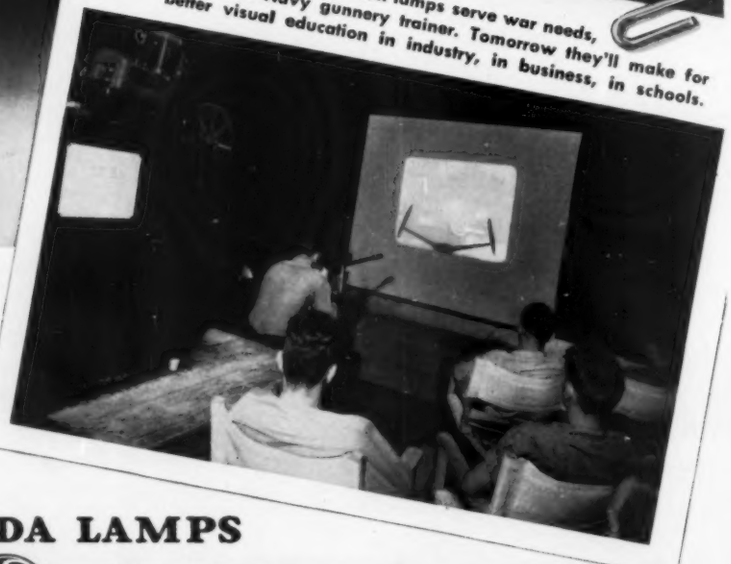


Table and Box Type | 3-Way Tripod Type | Wall Type | De Luxe Tripod Type | Wall and Ceiling Type | Grommet Type

TODAY, G-E projection lamps serve war needs, as in this Navy gunnery trainer. Tomorrow they'll make for better visual education in industry, in business, in schools.



In war, in peace, you can depend upon G-E quality

1. Designed for specific optical needs and for maximum performance.
2. Differentially coiled filaments for uniform brightness (on most popular sizes).
3. Built for extreme precision.
4. Rigidly inspected for correct source dimensions and accurate position.

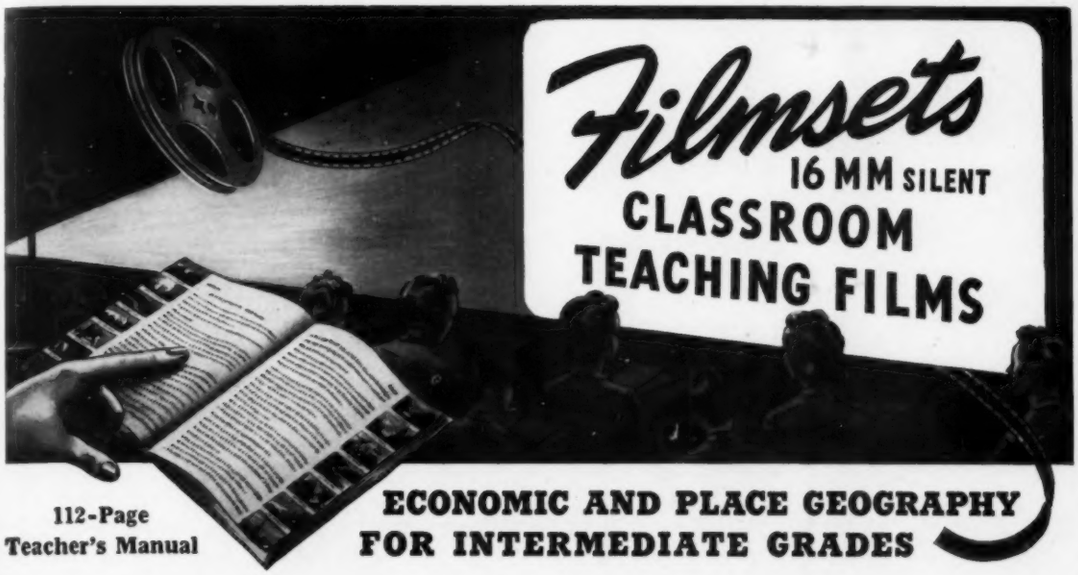
G-E MAZDA LAMPS

GENERAL ELECTRIC

BUY WAR BONDS AND HOLD THEM

Hear the General Electric radio programs: "The G-E All-Girl Orchestra", Sunday 10 p. m. EWT, NBC; "The World Today" news, every weekday 6:45 p. m. EWT, CBS.

TOMORROW'S TEACHING AIDS ARE AVAILABLE TO TODAY'S CLASSROOMS



112-Page Teacher's Manual

ECONOMIC AND PLACE GEOGRAPHY FOR INTERMEDIATE GRADES

★ **FILMSETS** value and utility are increased many-fold by the 112-page Teachers Manual with its 672 carefully selected illustrations from the films. Each 2-page spread in this manual is a lesson outline—a quick, convenient supplement to introduction and review of Textbook or lesson subjects. Manual does not dictate how lessons are to be taught as that is the task of the teacher. To **FILMSETS** purchasers is available an attractive metal self-humidifying film cabinet, each drawer built to house and preserve 12 films.

★ **FILMSETS** 22 economic subjects follow: Old Fashioned Farm . . A City Home . . Wheat and Bread . . Milk . . Fish . . Meat Animals . . Fruit . . Truck and Poultry Farm . . Coffee and Sugar . . Tea—Rice—Coconuts . . Rubber . . Growing Fibers . . Textiles . . Leather . . Lumber . . Clay and Stone . . Peat and Coal . . Iron and Steel . . Petroleum . . Watersheds and Power . . Transportation and Cities . . Mass Production.

★ **FILMSETS** 26 regional subjects follow: Zones . . Canada . . Alaska and Eskimos . . Atlantic Coast . . Mississippi Basin . . Rocky Mountains . . Pacific Coast . . Mexico and Central America . . West Indies and Panama . . Andes and Pampas . . Amazon . . British Isles . . Lowlands of Europe . . Mountains of Europe . . Plains of Europe . . Russia . . Mediterranean Basin . . North Africa . . Central Africa . . Desert . . South of the Himalayas . . North of the Himalayas . . China . . Japan . . Pacific Islands . . Australia.

The leaders of tomorrow's postwar world are in today's classrooms. The success of their leadership depends upon the knowledge they get today—on what they know about the world's Geography—upon what they know about the world's peoples, their habits of thought, and the source of their livelihood.

Today's biggest problem is to create a better international understanding insofar as America is concerned.

FILMSETS makes available to today's classrooms the teaching aid of tomorrow—in 200-ft., 16mm. silent Motion Picture Films covering 22 subjects in Economic (food, shelter, clothing), and 26 subjects in Regional Geography. **FILMSETS** are the only Classroom Teaching Films planned, photographed and captioned to help teach Geography and Social Studies to particular age groups—with meticulous attention to accuracy and authenticity of subject matter—and without padded sequences for photographic effect.

FILMSETS took five years to produce, at a cost of $100,000 for production and current revisions. They are immediately available at $12.00 per reel—*in any quantity desired.* Thus **FILMSETS** makes available to the one-room country school—or to the educational group—the finest of supplemental teaching equipment—at a cost within the most limited budget. FILMSETS, INC., 1956 N. Seminary Ave., Chicago 14, Illinois.

FILMSETS is affiliated with DeVRY Corporation
for 31 Years an Outstanding Name in the Field of Visual Education

Star awarded for continued excellence in the production of motion picture sound equipment.

DeVRY
New York • CHICAGO • Hollywood

DeVRY 16 mm Sound-on-Film Projector

DeVRY 16 MM SOUND-ON-FILM PROJECTORS ARE PRECISION ELECTRONIC INSTRUMENTS

Boost MORALE with DeVRY FILMS

Write for DeVRY's NEW 1944-45 FILM BOOK! Get data on late editions of Hollywood Entertainment Films, Selected Shorts and Educational Films. 25% off on 20 educational subject bookings —25% off on five feature bookings in one year. DeVRY CORPORATION, 1111 Armitage Ave., Chicago 14, Illinois.

★ ★ ★ ★ ★ ★ ★

MOVIE NEWS DeVRY

MAKE DeVRY YOUR FILM CENTER

FOR ENTERTAINMENT AND EDUCATIONAL FILMS write for DeVRY's New 1944-45 Film Book—FREE! . . . Also for DeVRY's FREE FILM SOURCE DIRECTORY. This SOURCE DIRECTORY catalogs more than 1,000 top-flight films that are available for showing without cost. Send 50 cents in currency or stamps to get a copy of DeVRY's FREE FILM SOURCE DIRECTORY **postpaid.**

CONSIDER THESE NEW TITLES for your Entertainment and Instructional programming:

HELP WANTED—(1 reel 16mm. sound)—A first-aid instructional film sponsored by Johnson & Johnson, world-famed manufacturers of first-aid products. Forty minutes of absorbing and interesting action on a subject that is of particular importance today. Service Fee—$1.00. Cat. No. L-189.

ADVANCE TYPING SHORT CUTS—(4 reels 16mm. sound)—A champion typist demonstrates the best technique in typing good letters. Many short cuts are suggested. Demonstrations include proper use of tabulation stops—erasures—labeling—filling-in omitted letters—and similar topics. Rental—$3.00.

WANT WIDER DISTRIBUTION FOR COMPANY FILMS?

DeVRY is helping such concerns as Johnson & Johnson, South Bend Lathe Works, Poultry & Egg National Board, New York Central Railroad, Allis-Chalmers Mfg. Co., and International Harvester Company, to widen distribution of their institutional and training films.

DeVRY helps you reach with your company films School, College, University, Church, Civic, Agricultural, and other influential organization groups.

If you have a motion picture film of your own (sound or silent), let DeVRY catalog, distribute and service it. Write for particulars. DeVRY FILMS & LABORATORIES, 1111 Armitage Ave., Chicago 14, Illinois.

A TREE IN A TEST TUBE—(1 reel 16mm. color and sound)—Stan Laurel and Oliver Hardy show the many uses of wood products. The film depicts wood products being developed in the internationally known Forest Products Laboratory, Madison, Wisconsin. Cat. No. 359. Rental —$2.00.

NATURE'S DEFENSE PACKAGE—(16mm. sound and color)—The story of the United States' annual two-billion-dollar egg business. All phases of production and distribution told interestingly in sound and color. Modern poultry farms and their latest methods of incubation, recording, testing, and packing eggs for market. Thirty minutes' running time. Cat. No. L-204. Rental —$3.00.

DESERT VICTORY—(16mm. sound)—Sixty minutes of absorbing interest in this British documentary film made under fire —DeVRY 35mm. Motion Picture Camera doing 95% of the filming. A dramatic record of the British Eighth Army's epic march from El Alemein to Tripoli. Cat. No. L-205. Rental $2.50 per day. Outright purchase price, $66.50.

★ ★ ★ ★ ★ ★ ★

TWO THOUSAND YEARS AGO...

MARCUS TULLIUS CICERO said:

"Not only is there an art in knowing a thing . . . but also a certain art in teaching it."

IN TWENTY CENTURIES, teaching methods have changed in pace with the development of new civilizations. Yet Cicero's words ring as true today as when they were first heard in Rome's forum.

The "art in teaching" of which Cicero spoke has evolved through the years from the pedestrian discourses of ancient philosophers to the scientific educational processes of today.

Modern teaching methods call upon the sciences and the arts for assistance in full measure. Modern teaching methods make wide use of *visual training aids*, which are the twentieth century's greatest contribution to man's enlightenment and the fostering of his skills.

Visual training media, amply proven in wartime usage, will be of great assistance in meeting the reconversion problems of business and industry. May we, as qualified producers of motion pictures and slide films, have an opportunity to point out how our products can best serve you?

MOTION PICTURES — SLIDE FILMS

Sm

SOUND MASTERS, Inc.

165 WEST 46th STREET ★ NEW YORK

Scene from ABCA, recent British war film showing informational programs for fighting men.

A Great and Immediate Challenge to the Visual Industry:

RETRAINING WAR VETERANS

THE REPORT by one steel company that it has already re-employed 90,000 men discharged from the armed services, highlights a problem of immense proportions facing the nation. All American industry will confirm Henry Ford's recent promise of job priorities to discharged veterans. The problem is to get these men retrained to maximum production efficiency in the shortest possible time.

It is this problem—and opportunity—to which personnel and training executives must now turn.

FILMS ALREADY IN USE

In a recent 16mm sound motion picture release, the Caterpillar Tractor Company has "prevued" this great area of retraining and rehabilitation in which the visual media, particularly motion pictures and slidefilms, can prove of the greatest benefit. In the picture, *Winning Against Odds*, Caterpillar takes up the training and placement of wounded and disabled men.

Similar pictures, stating the problem in this and other terms, are needed to bring about the sympathetic understanding and cooperation of supervisory personnel throughout industry. This is not only a job of skill training, it is equally a task of good employee relations. The cooperation of the entire plant must be insured while the gradual re-employment of veterans is taking place.

WHERE DOES THE JOB BEGIN?

The armed forces have already indicated that the job of postwar preparation begins behind the lines of our far-flung fighting fronts. Plans already in the making by the Army Pictorial Service and the Army Institute include the *visual* education preparation of service personnel at rest areas overseas.

Can industry aid in this pre-discharge preparation? Perhaps it can, even though there is little precedent. Industrial training material has been most valuable in the war products training of personnel in the maintenance and use of mechanized weapons; industry may well provide *vocational* background pictures on peacetime products provided they are properly edited and contain no advertising.

USOE TRAINING SERIES IDEAL

Foresight and thoroughness in the planning of the 1944 visual production program of the United States Office of Education has made these projected films near-perfect examples for use in retraining and re-employment as well as meeting present critical war training needs.

That critical shortages still exist in many war production areas while the quotas of available discharges from the armed services are rising is fortunate. When the full tide of war production has been reached, however, we must be prepared for veteran re-employment and retraining in an era of temporary production shutdowns and re-tooling for peace.

Motion pictures and slidefilms must then serve in the two areas of indoctrination and training previously indicated. As pictures have served such companies as Thompson Products of Cleveland, Sperry of Brooklyn, Armstrong Cork of Lancaster and other well-known corporations who are now continually using films to speed the understanding of new employees during the indoctrination period—so these visual media will be useful to tide the war veteran over the strains and stresses of battle and into the world of industry which he has re-entered.

Industrial executives concerned with this problem should see the recent sound slidefilm programs of the Committee for Economic Development. Although subject matter has no direct bearing on the actual retraining or rehabilitation of veterans, the management point-of-view in planning and preparation is well stated in *Target for Peace*, the first C.E.D. program.

OTHER RECENT FILM EXAMPLES

The technique of film use for employee indoctrination and industrial morale purposes is best illustrated in such recent sound motion pictures as *All Out for Victory*, a two-reel subject produced for Firestone by Wilding Picture Productions, and in *Women of Steel*, *Combat Team* and *Strength Unseen* by this same producer. In films produced to meet today's critical production line problems, both the sponsor and producer are setting high standards for the transition period and the era of post-war.

SKILLS IN MANY FIELDS TAUGHT

Not only specific skills on machine tools and in heavy industries may be taught with the aid of films; occupations such as maintenance and repair which serve as the basis for new dealerships will be profitably taught in vocational schools through available visual materials. The fields of refrigeration, farm equipment, aeroplane and automotive maintenance, radio and general electrical repair may be re-entered by veterans better qualified by understanding of latest developments visualized on the screen.

America has pledged a job for every returning service man. Keeping that pledge not only implies the *best possible job;* it entails the responsibility of helping our veterans live up to it. *Knowing* the job will help him keep it and visuals will help provide the "know-how"—faster and better. The armed forces have proven that through the use of visual education our fighting men learned better and remembered longer *the arts of war.* Visuals will emphasize this useful role as they help teach our returning veterans *the arts of peace.*

AMERICA WILL KEEP THE PLEDGE—AND VISUALS WILL HELP US RETRAIN OUR VETERANS FASTER AND BETTER

In Canada, too, war workers are regularly seeing the latest in war films. These women workers are watching the hard-hitting, dramatic films of the Industrial Circuits, a service of the National Film Board. On the screen they follow the equipment they have helped make into action.

War Workers Get Battle Reports

OFFICERS of the Industrial Services Division of the Army, working through established leaders in 16mm film distribution of the visual industry are creating new miracles in getting their hard-hitting visual reports of Army and Navy battle action to the workers on the nation's war production lines.

From factual statistical reports supplied by these experienced distributors, Army film showings have risen from a monthly total of 75,000 workers in June of a year ago to nearly *five and one-half million* per month as of February, 1944. In that month there were 20,499 showings throughout the United States.

These Canadian war workers are the "other" but not always the "better" half of the production line audience served by the Industrial Circuits of the National Film Board. Thousands of Canadian war workers regularly attend monthly plant showings thus provided.

LARGE AND SMALL PLANT SHOWS

From the largest national war material producers in Detroit and Chicago to the smallest groups in critical mining and similar key production centers, there has been nationwide industrial acceptance of these Army films. Audiences as large as 16,000 workers have been accommodated in a single series of performances (Glenn Martin workers at Baltimore). 80,000 employees of another plant saw these films in a single week.

The purpose of these films is clear-cut. They are intended solely to keep the American war worker informed of the technique and progress of the war—to make him feel what he really is—a vital part of the big show. This is accomplished by providing unvarnished truths of combat and production in a film series topping anything shown in commercial theatres.

From the principal contractors whose experienced staffs keep close check on vital statistics for the Army and Navy to the local distributors who carry out the actual showing and distribution of each new subject, getting these films to the war plants has been an All-American job.

BRIEF REVIEWS OF NEW FILMS

The pictures themselves set the pace for audience interest. Here, in brief are thumbnail reviews of the latest Army releases:

FILM COMMUNIQUE No. 5: 20 minutes of the real thing, including an 11-minute section on *Bloody Tarawa*. Hand to hand fighting and flame throwers—you'll see a bullet actually knock off a soldier's helmet.

THE CASE OF THE TREMENDOUS TRIFLE: Remember that huge air raid on a ball bearing plant in Germany? This film shows the selection of the target—planning of the attack—an actual bombing—its exciting detective-story form sequence emphasizing the vital part played by every piece of American and enemy material. *(20 minutes.)*

EARTH MOVERS: Miracles of engineering performed in front of your eyes. One sequence shows American engineers literally throwing a bridge over a 150 foot hole blown in a road shelf. *(14 minutes.)*

AIR FORCES REPORT (a War Department special release): This is the sequel to *War Department Report* that will be prevued in late May or June. It's General Henry Arnold's report on the activities of the Army Air Corps all over the world. *Watch for announcement!*

For information concerning any of these films contact the Industrial Services Officer at Command headquarters of the area in which you are located.

SINCE the first of this year, Castle Films has released five special *News Parades*, getting prints into circulation through 16mm film distributors on each subject before the event has lost its headline importance. By the fastest work possible in an organization geared to deadlines dictated by the demand of a public hungry for these films, this producer has been providing timely war releases that have met with warm approval by projector owners, by plant personnel directors and even by the Army and Navy.

War plant workers are regularly seeing these battle-action films today in which many of the machines and tools of war they build play a vital part in combat action seen on the screen.

U. S. Marines Capture Tarawa was ready before the first of January. Late in February *Salute to the Navy* was announced and it featured a task force raid on the Marshall Islands which later proved to be preparation for the invasion. *Yanks Invade the Marshall Islands* followed fast on the heels of the Navy film and before the story had ceased to be a newspaper topic. *Fight for Rome!* and *Russia's Smashing Offensive!* are both pictured in a Castle War subject released early in April. Some of the most thrilling battle-action photography features this special *News Parade* but its chief interest to audiences is the fact that it covers two campaigns of the winter which are certain to have an important bearing upon things to come in the European theater.

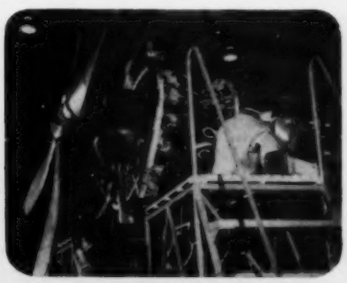
In the Italian campaign, fighting on the Anzio beachhead is seen with some of the terrific bombing and shelling suffered by the American and British forces in the critical early period of the landing below Rome. On the Gustav Line in the vicinity of Cassino, some of the all-out bombing show put on by the American air forces is seen, with ground action in the most difficult terrain encountered by the Allies.

The Russian front has never produced more astounding front-line photography than has been selected for the second half of this Castle subject which depicts the onward rush of the Red Armies in hurling the Nazis out of Russia. Cameramen have braved terrific shellfire to get in close to actual firing line action, often so near the explosion of heavy howitzer shells as to have their cameras shaken by concussion.

The latest film of timely interest to be released is a complete motion picture record of the sensational smashing of Truk, the Jap "Pearl Harbor" which took place shortly after the capture of the Marshall Islands. In this 16 mm sound movie, *Yanks Smash Truk*, the entire action is photographed from the air and provides some of the most exciting scenes of fighting and bombing ever screened.

INCENTIVE FILMS: LATEST NEWS-PARADES

RIGHT: SCENES FROM WAR PLANT NEWS SUBJECTS: (Top) "Fight for Rome," scene from latest Castle News-Parade release of that title; (below) "U. S. Marines Capture Tarawa"; (third from top) from the U. S. Army film "The Case of the Tremendous Trifle" and (bottom right) scene from "Yanks Invade Marshall Islands." All scenes below are from the latest U. S. Army incentives subject "Film Communique No. 5," now available from nationwide official Army-Navy distributors for plant showing.



FAST MOTION ANALYSIS AS AN AID TO ORGANIZED INVENTION

A BUSINESS SCREEN SPECIAL FEATURE IN A SERIES ON VISUAL CONTRIBUTIONS TO VICTORY

By Captain E. M. Watson

Air Corps, Armament Laboratory, Wright Field, Dayton, Ohio

DURING a war, fear of the consequences, if it should be lost, causes the greatest possible efforts to be put forth in the attempt to win it. Just as mechanical devices are used to increase production in peace time, they are likewise employed in times of war to make the efforts of the soldiers more effective. Of these mechanical devices, many operate too fast for their performance to be observed by the unaided eye. In some instances in the development of these devices or in their adaptation to new uses, the various aids for analyzing fast motion can be utilized to advantage in determining any appreciable variation from the desired performance. In the past it was necessary to do this work entirely by trial and error, examining as evidence after operation scarred, worn, misplaced, deformed or broken parts. When conditions permit the use of these analysis aids, usually less time is used in discovering the deviation from the wanted operation than would be used otherwise.

PROCEDURE SHOWN IN TABLE

The procedure for this accomplishment is shown in Table 1. With the following comments conforming to the sequence of items shown in this table:

1. In getting any device ready for a test it is necessary to consider what is to be found out about it, the complete equipment to be used in the test, and the preparation (such as cutting windows, etc.) needed to put the device into the proper condition for running the test in mind. Listed in "taking of test data" are various devices which may be used.

If performance in a single area, showing motion in two dimensions, and to some extent in a third, as a function of time is desired, pictorial equipment may be used. This includes means for stopping motion for visual examination, such as by a stroboscope or by a shutter, as well as by photographically recording the image for later leisure examination. The advantage of this lies in the fact that there is no change in the performance due to loading of the parts by the recording instruments. The various devices that may be used for this are described in the paper "Aids for Pictorially Analyzing High Speed Action." (BUSINESS SCREEN, No. 8.)

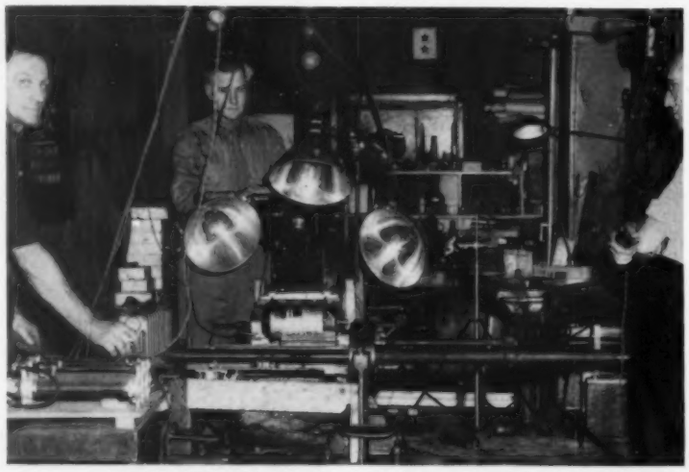


Figure 1. High speed camera and accessories set up for photographing the operation of an ammunition feeder for a 20 mm aircraft cannon. A drum for the use of waxed paper may be seen directly behind the lower end of the vise handle.

If a record of motions in several directions and from different locations is desired, an oscillograph and companion equipment may be used (Fig. 2). For relatively large motions covering whole or ordinary fractions of inches, the electrical values to be recorded by the oscillograph may be produced by the use of equipment employing a travel gauge or a slide wire resistance. For smaller motions, in the range of thousandths of inches, equipment employing a strain gauge or a piezoelectric pickup may be used. These devices may be constructed so as to read very small changes in dimensions; and when mounted on various parts that are to be stressed, they are sufficiently sensitive to permit in most cases the determination of instantaneous stresses from the record of the resultant strain. Each individual application of these gauges must be calibrated on the part used. Also in some instances a photo electric cell may be employed to advantage in a pickup. Through the use of the oscillograph, electrical conditions present in the device under test may also be recorded simultaneously with the motion.

ALSO RECORD ON PAPER

When the motions are in one direction and in a limited area, direct recording on paper may be employed. This can be done either with a pencil or a pen on ordinary paper, or with a stylus on waxed paper or paper otherwise coated to show the path of the stylus (Fig. 1).

Under the heading of "Special Devices" comes such apparatus as may have to be constructed specially to do the particular job in question. If there is considerable testing of a certain type to be done, these special devices may facilitate much saving of time. However, since to some extent tests may be conducted with more than one of the devices listed, it is preferable, if possible, to use what is at hand, rather than to

Figure 2. Film on which recording is made being placed on camera attached to oscillograph. These with the amplifiers, power units, etc. mounted on the wall are part of a travel and strain gauge setup.

Figure 3. Cardboards to which description and enlargements from individual motion picture frames are attached and which are joined by tape hinges. The action of locking of the 20 mm aircraft cannon may be studied picture by picture.

Figure 4. The special projector for examination of motion picture film. Horizontal and vertical scales with movable transparent rules permit measurements of positions of the subject to be made.

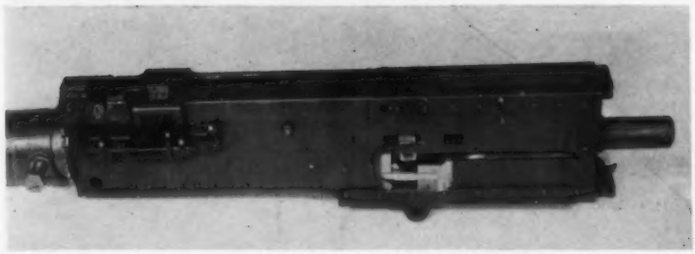


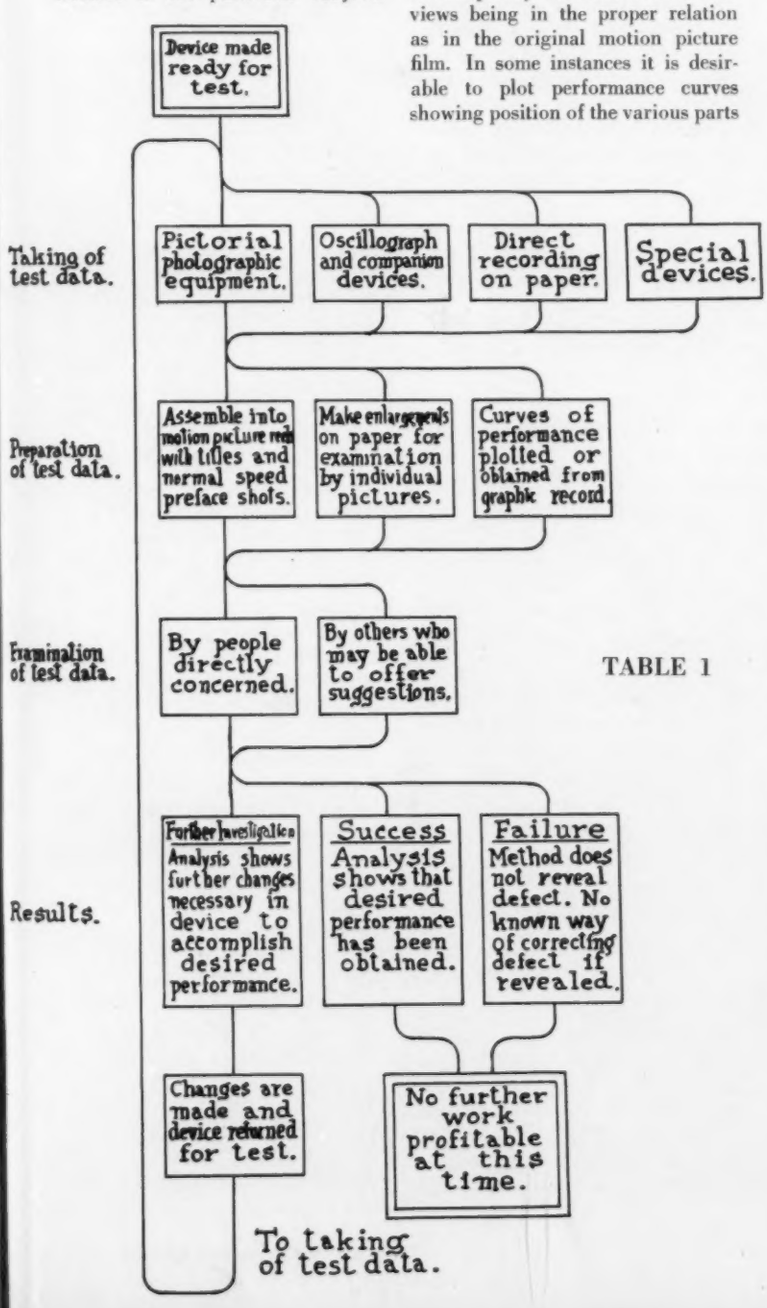
Figure 6. 50 caliber gun with window cut in side, for viewing operation.

Figure 7. Other side of same gun opposite, showing viewing window.

construct special devices.

Under the heading of "Preparation of Data" the processing of the results varies with the purpose for which these results are to be used. Motion picture film which has been examined for performance of the subject as soon as ready may be made into reels with normal speed preface shots and titles for later showing to people who may be interested in the particular subjects involved. The individual frames of the movie may be copied and enlarged on paper (Fig 3). These enlargements, when mounted five to a page, with typed description of what happened adjacent, may be made into a stack with tape hinges so folded that two pages at a time may be brought into view, or, if a longer sequence of action is to be examined, as much as is required may be completely unfolded with all the views being in the proper relation as in the original motion picture film. In some instances it is desirable to plot performance curves showing position of the various parts being studied as a function of time. This may be done either by projecting the film as individual pictures on the screen and measuring the positions of parts (Fig. 4), or by measuring the silver prints made for the stack as described above.

TABLE 1


Device made ready for test.
Taking of test data.
Pictorial photographic equipment.
Oscillograph and companion devices.
Direct recording on paper.
Special devices.
Preparation of test data.
Assemble into motion picture reel with titles and normal speed preface shots.
Make enlargements on paper for examination by individual pictures.
Curves of performance plotted or obtained from graphic record.
Examination of test data.
By people directly concerned.
By others who may be able to offer suggestions.
Results.
Further investigation
Analysis shows further changes necessary in device to accomplish desired performance.
Success
Analysis shows that desired performance has been obtained.
Failure
Method does not reveal defect. No known way of correcting defect if revealed.
Changes are made and device returned for test.
No further work profitable at this time.
To taking of test data.

Formula for Energy Estimate

By the use of the physics formulas, $F=MA$ and $F=\frac{1}{2}MV^2$, it is sometimes possible to estimate the energy in the various moving parts and the forces incident to the transfer of energy to and from them. Sometimes it is found that several unknowns which cannot be evaluated are involved. For example, a force may be pushing an object which is being impeded by friction. Any acceleration or deceleration of the object is the result of the difference between the rates at which energy is being added and subtracted. The friction involved is often difficult to evaluate, because the coefficients of friction and pressures normal to the travel of the object are not easily determined. This is particularly true when explosions are involved during the operation of apparatus when there are very violent shock waves in the materials themselves causing almost incredible conditions to be revealed.

Simplified for All Uses

With reference "Examination of Test Data," the people who are only occasionally in a position to make use of this data are often only slightly familiar with the methods by which it was obtained, and to have the data in as nearly as possible the form with which they are familiar will considerably expedite the progress that can be made in this kind of activity.

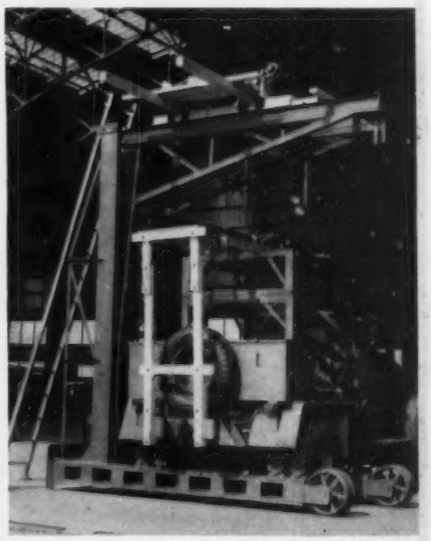
When trials are made of a device in the development stage, there are usually a number of details involved in the setup which are of interest only to the men who have asked for the test to be run, and there would be little value in any general showing. There is some advantage, however, in building up a library in which different kinds of devices are shown, in order that when there is a situation needing attention, there will be available a record of a similar situation which can be reviewed in order to form an estimate of what can be accomplished in the current situation.

Most of the progress in mechanical devices has been by the trial and error method and, although these devices may operate fairly satisfactorily, it may not be known just what does take place or how much margin there is before unsatisfactory operation will result. It may be found that a device in question does work satisfactorily for the original purpose but does not work satisfactorily when it becomes a part of a new combination.

It is when the first construction of a device which a designer has originated is complete and is being given its initial trials that these methods of analyzing fast motions are of most value to a project. The designer has proposed certain operations when the apparatus was laid down on the drafting board, but he may not have chosen the best way to attain these, since there may not have been sufficient experience on the subject to permit the best decision to be made. When the completed device is given its initial trials, certain variations from the

(Continued on Page 30)

Figure 5. 37 mm gun mounted on turret truck for test firing. The elevator on which the camera is placed is adjustable in height for various picture sizes.



Scene from "Reconditioning a Two-Bottom Tractor Plow"—Farm Work.

A scene from "Reconditioning a Mower"—new USOE film (Calvin).

Visual Aids to Farm Work

• A U. S. OFFICE OF EDUCATION SERIES •

As SIGNIFICANT as the well-known *Micrometer* film and other machine shop films, and the shipbuilding and aircraft visual aids units, is the Farm Work series, produced by the Division of Visual Aids for War Training, U. S. Office of Education.

The Farm Work series, now consisting of five available film units, is planned to cover a total of fifteen subjects for use by adult farm groups and for classes in vocational agriculture throughout the United States—learning tools on the home front.

Underlying the completion of each sound motion picture, each filmstrip, and each instruction manual, which together, make up a visual aids unit in this series, is a fascinating story of research, and of the cooperation of national authorities in the selections of ideas, methods and materials which build the skeleton for the final film unit.

EXPERIENCED ADVISORY STAFFS

The production of each visual aids unit, without exception, represents the thinking of experienced and skilled individuals who are actually *doing* the job. Advisors for any production may often differ in point of view and practice, according to the section of the country from which they come, or may even be competitors in a product, or service, or commodity, but an agreement on common purposes, correct principles, and approved practices is arrived at for development in a training film unit.

Each subject is unique in one way or another with respect to production, and a sample story is one on the *Sheep Shearing* film, produced in January 1944 in order to be ready to aid in the harvest of an $80,000,000 wool crop this spring.

SHORTAGE OF SHEEP SHEARERS

Faced with a scarcity of high-rollers (expert sheep shearers to you) and with a critical manpower shortage, especially in areas where sheep growing has been recently encouraged as a new crop, agricultural authorities came to the Division of Visual Aids for War Training with a request to produce a training film on sheep shearing.

By the first week in January a rough draft script was completed, reviewed, and edited for shooting. Sheep from the Chicago Stock Yards, in a specially built pen, were made to feel at home on the sixth floor of a metropolitan manufacturing plant. The producer's camera equipment and lights, packed in a shock-proof trailer, were hauled up within a few yards of the proposed sheep-shearing area.

In five days the motion picture and filmstrip scripts were shot, and by the middle of the month, the rough edited motion picture was thoroughly, but inconveniently, reviewed in a crowded hotel room, the pictures being projected upon a pillow slip pinned on the wall.

The film, re-edited to corrections, was ready for sounding in another three days. This narrative recording was done in the producer's studio on a cool January heat-conservated morning. After debates, compromises, trials and corrections in the final script, the film was sounded.

Filmstrip pictures for the instruction manual were reviewed and discussed. For two days, copy for the manual was organized and put into first draft form. In addition to U. S. Office of Education staff members, this work was done with the aid of a sheep shearer, a film director, a scenario writer, and with the advice of an experienced sheep grower and owner, familiar with small flock and range sheep growers.

CRITICAL SUPPLY PROBLEMS

The film unit was ready for quantity production by the middle of February, but extreme war emergencies made inroads on its further progress. A shortage of raw film stock was declared, holding up production of prints from the negative. Requests for prints of the film began to pour in. Not until April 1st, could prints be distributed in quantity, it is hoped not too late for use in helping to harvest the 1944 wool crop.

A new production in the Farm Work series entitled *Horseshoeing*, is now being rushed to completion to meet the demands of farmers west of the 100th meridian, and to supply vocational schools and the military services with a much needed training tool.

The treatment of the subjects, *Sheep Shearing* and *Horseshoeing*, like all of the U. S. Office of Education film units, is that of a clear, straightforward, step-by-step presentation of operations to teach a skill.

SUBJECTS NOW AVAILABLE

Visual aids units now available from Castle Films in the Farm Work series are:

Sheep Shearing.

Community Canning (shows and explains the processes involved in preparing and canning nonacid vegetables in a community cannery).

Reconditioning a Mower (shows how to check and repair the cutter bar mechanism of the mower).

Reconditioning a Two-Bottom Tractor Plow (shows how a tractor plow should be examined and repaired at the end of each plowing season).

Reconditioning a Grain Drill (shows how the parts of the grain drill which are commonly subject to most wear are checked and repaired).

Visual aids units now in production by the Calvin Company are:

Reconditioning a Mower: Part II.

Reconditioning a Cultivator.

Care of a Tractor.

General Farm Maintenance.

Home Canning of Tomatoes.

Canning Meats in the Home with a Pressure Cooker.

Handling Livestock.

Horseshoeing.

Painting (2).

"MORE LEARNING IN LESS TIME"

A Word of Introduction

WARTIME TRAINING requires preparing men for duty better and faster than ever before. To help do this job the Navy has turned, on a basis of proved experience, to audio-visual aids. MORE LEARNING IN LESS TIME is the basic United States Navy manual on the educational use of these instructional tools. Publication of this manual meets, in part, the demand for help in using these aids to train large numbers of men better and faster in Naval schools, operational bases, and aboard ship.

Recommended procedures, outlined in the manual, grew out of the comprehensive and intensive field experiences of the Navy's staff of audio-visual utilization officers. Actual preparation, as well as authorship, of this manual has been the work of many officers assigned to the Training Division of the Bureau of Naval Personnel. Copies have been made available to each Naval instructor thru the audio-visual utilization training officers attached to the staff of the Directors of Training of each Naval District or Operational Training Command. These officers are assisting instructors in making the best use of the manual as they employ instructional tools in training programs.

The Navy Department regrets that copies of the manual are not available to the general public from government sources. However, reprinting permission has been granted BUSINESS SCREEN and copies are now available for the user of training aids in our schools and industries.

Lieutenant-Commander Francis W. Noel, USNR,
Officer in Charge, Utilization and Evaluation Unit,
Training Aids Section, Training Division,
Bureau of Naval Personnel.

EDITORIAL ACKNOWLEDGMENT

The Editors of BUSINESS SCREEN *are indebted to the Navy Department for permission to reprint this excellent review of Training Aids and their use. To member firms of the Visual Industry—the Ampro Corporation, DaLite Screen Company, DeVry Corporation, the Jam Handy Organization, Radiant Manufacturing Corporation, RCA Victor Division of the Radio Corporation of America, the Society for Visual Education and the Victor Animatograph Corporation goes the gratitude of the many additional thousands of educational and industrial executives who will receive gratis postpaid copies of this book, made possible by these firms.*

Visual Executive *News Letter*

AUTHORITATIVE WARTIME CORRESPONDENCE AND COMMENT BY KEY EXECUTIVES ON VISUAL EQUIPMENT AND PRODUCTION PROBLEMS

IMPROVEMENT OF PRODUCT IS FIRST

★ We have frequently been asked about prices on sound motion picture equipment in the post war period, but at the moment it is difficult for us to offer a reliable estimate. We might state, however, that despite the fact that our production of projectors for the Armed Forces

William C. DeVry, President
The DeVry Corporation

exceeds any previous record, we nevertheless find that certain basic costs cannot be materially reduced by volume production.

In addition to these factors, there are constant demands for engineering and new developments to improve clearness of picture and quality of sound in both the 16 mm and 35 mm projectors. These obvious problems, combined with higher labor rates in the post war period, lead us to believe there will be no fantastic reduction in prices.

We will say, however, that consumers will receive a superior machine for approximately the same amount of money that they paid for equipment in the pre-war era.

QUALITY IS BASIC GOAL FOR POST-WAR

★ It is unfortunate that the pseudo-scientific articles in Sunday newspaper supplements—not to mention the flights of fantasy of advertising copy writers—are fast leading the American public to the conclusion that *every* post war product will do more and cost less because of miracles brought about by "electronics."

It is undeniably true that electronic principles have been applied more broadly than heretofore, both in finished products and in manufacturing processes, as a result of our war effort. For the most part, however, these principles are not new. Rather, there has been an extension of old ideas into new fields but the process is more accurately described as refinement rather than revolution.

A rumor has recently been circulated, for example, concerning post war sound projectors to be built by Bell & Howell and to be sold for $100 to $150. Such rumors, obviously, are without foundation since the basic elements of a sound motion picture projector—a complete silent projector supplemented by sound reproducing apparatus—will still be required regardless of electronic or

J. Harold Booth, Vice-President
Bell & Howell Company

mechanical developments. And while it is probable that there may be some reduction in raw material costs this reduction will unquestionably be offset by higher labor rates. It is therefore safe to predict that sound projectors of the future, if they are to provide the performance of the machines of today, will probably be more costly than pre-war models. Any attempt to cut corners will necessarily result in a machine which will be less endurable and which will be incapable of reproducing sound motion pictures with the fidelity to which we have become accustomed.

There will unquestionably be progress in the manufacture of sound projectors—but this progress will be in the direction of lighter weight, quieter operation, simplified controls, more brilliant screen images, and new realism of sound reproduction. To cast aside these objectives in an effort to produce cheaper equipment would, in the final analysis, be detrimental to the interests of manufacturers and consumers alike.

PROJECTOR USERS WILL REAP BENEFITS

—Predicts O. V. Swisher,
Sound & Picture Division, RCA

★ Commercial users of sixteen millimeter projector equipment may look forward to reaping the benefits of many outstanding improvements and refinements which have been brought about by the war-time needs of our armed services in their training and morale programs. Vastly improved quality of sound reproduction, greater ruggedness and all-around improved performance are among the improvements which peace-time users may expect.

No reliable estimates can be made at this time about the probable cost of this improved sixteen millimeter equipment in the post war period. Post-war prices will obviously have to take account of increased labor and material costs and any other factors that may exist at that time.

WAR KNOW-HOW KEY TO THE FUTURE

★ Let us hope that the American public and dealers are not being misled by over-zealous articles in trade papers and other publications about the "miracle" sound projector for post war.

These rumors, stating that a miracle sound projector can be made and sold for $100.00, obviously are the result of wishful thinking.

When all the problems involved for building such a sound projector are considered, this dream projector is not likely to materialize. Basically a sound projector consists of a precision film moving mechanism, a high grade amplifier and speaker unit. All of these are costly to manufacture and precision is essential in reproducing high quality sound.

To reduce cost would be to reduce precision or to substitute inferior materials. It is also necessary to point out that manufacturing sound equipment requires highly

Harry Monson, Vice-President
The Ampro Corporation

skilled labor and it is not likely that present labor and wage standards will be reduced materially after the war. It would seem, therefore, that to try and produce a sound projector at a cost suggested by the post war dreamers would only result in an inferior unit below the standards already set in the industry.

Since Pearl Harbor, our facilities and efforts have been devoted to the manufacture of instruments of war. While the exacting requirements of these new highly intricate products have taxed our experience and technical knowledge, this experience and

(CONTINUED ON THE NEXT PAGE)

Visual Executive *News Letter*

A BUSINESS SCREEN SYMPOSIUM ON POSTWAR EQUIPMENT TRENDS

(CONTINUED FROM PREVIOUS PAGE)
the "know-how" thus gained is bound to enable us to build a better projector in the post war period.

We can assure both dealers and consumers that Ampro projectors will be designed to suit the post war tastes of the greatest number of consumers in price ranges that will move the greatest volume.

PRICE CHANGE IS NOT ANTICIPATED

★ Any attempt to predict post war equipment models or prices would seem to be extremely hazardous at this time. First of all, none of us

Ellsworth C. Dent, Gen'l Mgr. Society for Visual Education, Inc.

know whether "post war" will begin in six months or sixty months, even though we all wish the whole mess could be brought to a successful conclusion tomorrow. The duration and the necessary adjustments to follow will affect directly all production and distribution plans.

During the past two years, approximately 95% of the production facilities of the Society for Visual Education have been devoted to the materials and equipment required for war and related training. The production of regular and special training equipment has included new developments and procedures which will have a definite bearing on future plans. All desirable improvements will be given careful consideration. These will enable S.V.E. to continue its policy of providing the most suitable equipment in any given price range, for both general and special uses.

The very favorable results achieved through the use of slidefilms and 2"x2" slides for war training have created a heavy demand for similar instructional materials for use among schools, churches, industry and other organizations with training problems. It is believed this demand will be increased by greater emphasis upon effective training aids to solve some problems of post war adjustment. As in the past, S.V.E. will expect to provide the various types of projectors and accessories required for these uses and for use by individuals. This will likely involve the usual models and equipment to accommodate new developments in projected training aids.

Important changes in prices, in either direction, are not anticipated except as general economic changes may bring them about. If the cost of labor and materials increase slightly, it may be possible to avoid price increases through improved production efficiency. If there are major changes in production costs —upward or downward—it is only logical that these changes will be reflected in prices to the consumer. The interdependence of all manufacturing, distribution and service leaves no alternative.

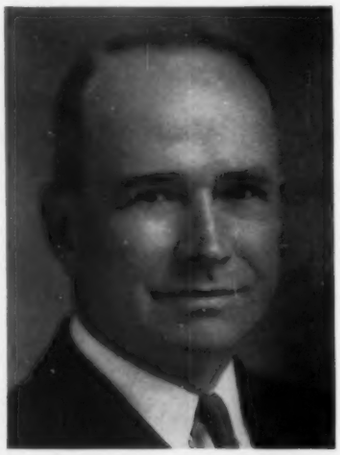
NO SUBSTITUTE FOR PERFECTION

★ This question of post war projectors—their form and their price, is a most difficult one to discuss now with any degree of accuracy. It is certain that the many unfounded rumors of very low-price projectors will remain nothing more than rumors. At least that is as we see it now.

Labor rates are much higher than they were in early 1942, and material costs have advanced somewhat. That is also true of many of the units that are purchased in finished form for combining into our final assembly.

Requirements haven't changed. There can be no sacrifice of picture quality or perfection of sound reproduction. Precision workmanship and proper selection of materials are still requisites. We can expect no lowering of cost, therefore, of material or labor.

Great additional volume, as compared to pre-war times, would help in reducing costs, thereby affecting list prices. Distribution costs have been high, too, but perhaps a more ready acceptance by the purchaser,



S. G. Rose, Vice-President Victor Animatograph Corp.

creating fewer sales calls before sales are made, would also help in reducing prices. Elimination of some of the "gadgets"—still pictures, reverse, motor-driven rewind, and even two speeds, would tend to further economies.

Considering all factors together I cannot see any great reduction in price—perhaps some, and depending upon developments over a period of several months, perhaps a year or two after. That is all we can tell you now about the post war sound projector.

New Spencer Lens Officers

★ At a meeting of the Directors of the Spencer Lens Company, Buffalo, N. Y., Scientific Instrument Division of the American Optical Company, on Friday afternoon, March 24, the following officers were elected: Heywood Fox, President; Harold D. Rhynedance, Vice-President in charge of Sales; Walter G. Buckley, Vice-President in charge of Manufacturing and Chairman of the Board; Bryant Glenny, Treasurer and Ass't. Secretary; E. E. Williams, Ass't. Treasurer; Charles W. Barton, Secretary.

William A. Kerr has been appointed General Sales Manager and will be responsible for the administration of the Sales Division under Mr. H. D. Rhynedance, Vice-President in charge of Sales.

Ball Joins du Pont

♦ The Photo Products Department, E. I. du Pont de Nemours & Company, announces the association of J. A. BALL as consultant.

A pioneer in the field of color photography, Mr. Ball of recent years has been consulting engineer for McGraw Colorgraph Company and Walt Disney Productions, both of Burbank, California. Until 1939, he was vice president and technical director of Technicolor Motion Picture Corporation.

Mr. Ball, who holds a number of patents and is a frequent contributor of articles on photographic processes to technical journals, will continue his residence on the West Coast.

Westinghouse Names Ebersole Manager

♦ Appointment of RUSSELL E. EBERSOLE as lamp sales manager of the Westinghouse Lamp Division, has been announced by Ralph C. Stuart, manager. In his new position, Mr. Ebersole will have charge of all district sales activities of the Lamp Division and will make his headquarters at the Bloomfield plant.

WANTED

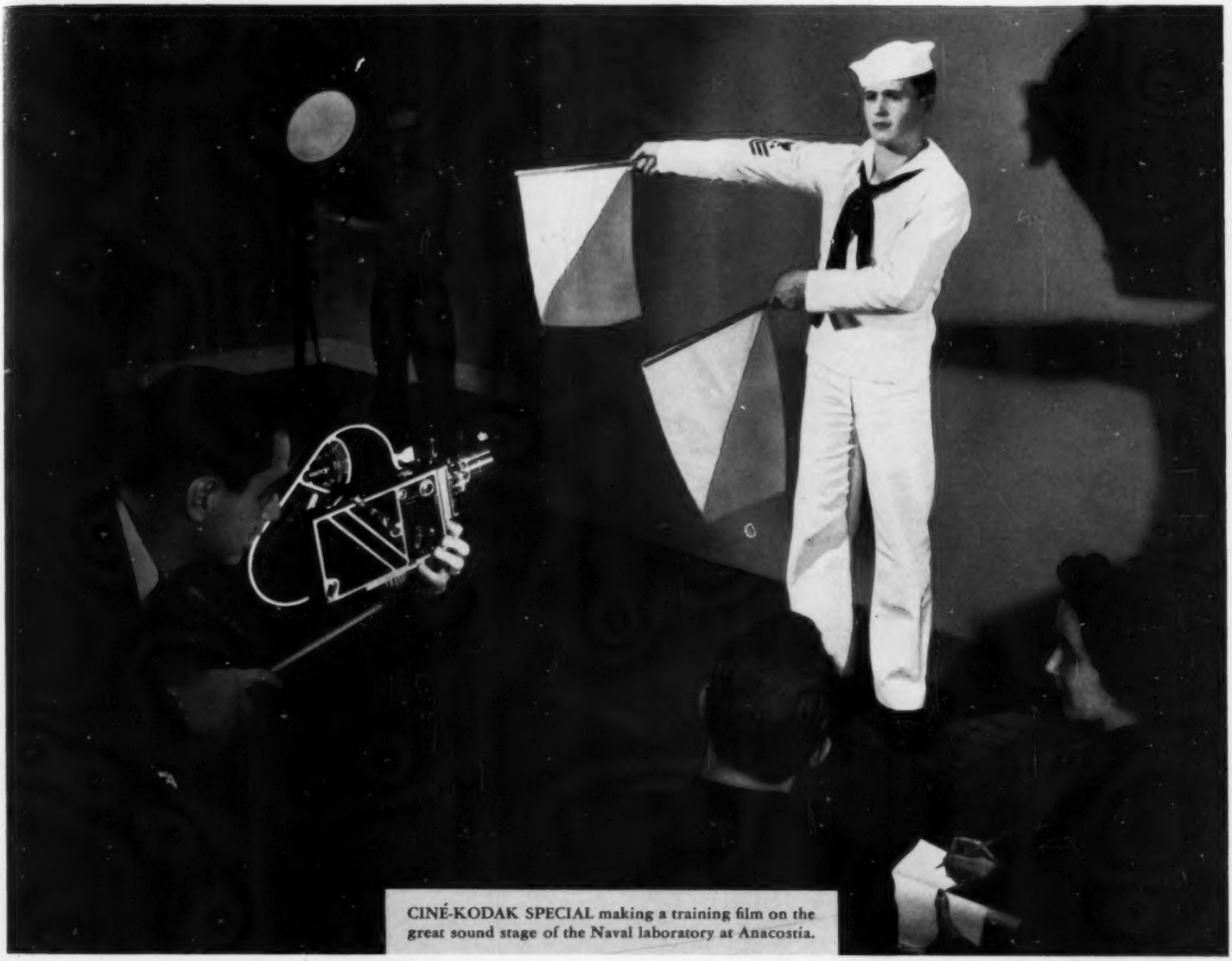
A major commercial motion picture production organization with main studios in the middle west, unequalled facilities, outstanding staff, quality reputation and topnotch nation-wide clientele is seeking high grade sales and creative men in preparation for resumption of service to civilian clients and postwar activities.

This organization is not satisfied with anything mediocre, has reputation for low personnel turnover and for providing wide opportunity and liberal compensation for those who produce results.

Don't waste your time if you are a door knob puller, a weather report writer, or lack a record of experience and accomplishment. This is not a house to house, straight commission deal. The men who qualify will be guaranteed an adequate salary.

Our present staff knows of this advertisement. If you are interested now or think you may be at a later date, let us hear from you. All replies will be held in strictest confidence by the president of the company.

Address **BOX A, BUSINESS SCREEN, Chicago 11, Illinois**



CINÉ-KODAK SPECIAL making a training film on the great sound stage of the Naval laboratory at Anacostia.

Official U. S. Navy Photograph

A great war camera—the "SPECIAL," leader of all Ciné-Kodaks

IF you are an advanced amateur, you have long known Ciné-Kodak Special as the movie camera that "has everything." Its combination of great qualities makes it far and away the finest instrument for advanced 16-mm. movie-making ever produced.

If you are a doctor, physicist, biologist—you are familiar with the Special's remarkable adaptability in recording and demonstrating all kinds of scientific work.

And now—as a great war camera—Ciné-Kodak Special is again demonstrating its tremendous versatility.

Hundreds of these Specials are in Army, Navy, and Air Force hands today, contributing to the most complete war record ever attempted. The Special's adaptability to the toughest and most varied conditions gives it a very great range of war uses—from filming action on Navy ships, and with our Army at the front, to making educational and instruction films in the great Naval laboratory at Anacostia, as shown in the picture above.

* * *

Your own Ciné-Kodak is a blood brother of this great war camera. Take care of it. Use it, these days of limited film, to make movies of the home front, for your soldier or sailor to see on his return. . . . Eastman Kodak Company, Rochester, N. Y.

Ciné-Kodak

EASTMAN'S FINER HOME MOVIE CAMERA

Which?

BASIC ELECTRICITY

FUNDAMENTALS OF ELECTRICITY

Which One You Teach

Here is a JAM HANDY *Slidefilm Kit-set to help you*

Eight hundred and eighty-eight lighted pictures comprise the Jam Handy Kit-set on *Basic Electricity.* Each picture "talks to the eye" presenting information quickly and clearly. These 888 illustrations—drawings, photographs, diagrams, arranged in 12 slidefilms—help teach basic principles of electricity vividly and thoroughly.

Fundamentals of Electricity (PIT 101) is composed of lighted pictures, photographs, cross-sections, drawings and diagrams. This set of 1,581 pictures is correlated with Government PIT Training Outline 101—matching an appropriate slidefilm with each section of the Outline.

Such slidefilms help teachers carry heavy teaching loads and still do an excellent job of teaching—good teaching plus effective visualization equals success in getting understanding throughout the classroom.

Easy to use, technically correct and authoritative, these slidefilms provide a complete step by step visual explanation of electrical principles.

Try these slidefilms in your classes: you may prove for yourself without charge, the value of either of these Jam Handy Kit-sets. Whether you are teaching Basic Electricity or Fundamentals of Electricity, mail the coupon below to learn how you can have a free ten day trial of the pictures you want in your classroom.

THE JAM HANDY ORGANIZATION, Inc.
2900 East Grand Boulevard, Detroit 11, Michigan

Please send without obligation full details on how I may try out in my classroom:

- ☐ Basic Electricity Slidefilm Kit-set
- ☐ Fundamentals of Electricity Slidefilm Kit-set (PIT 101)
- ☐ Please enter our order for the Basic Electricity Slidefilm Kit-set of 888 pictures at $45.75 f.o.b. Detroit.
- ☐ Please enter our order for the Fundamentals of Electricity Slidefilm Kit-set of 1,581 pictures at $73.25 f.o.b. Detroit.

Name.....

Position.....

School.....

Address.....

Allis-Chalmers' Visual Programs

LAST YEAR, The Jam Handy Organization produced for The Allis-Chalmers Mfg. Company, a sound motion picture titled, *The Magic of Steam.* This picture revealed the construction and operation of the modern steam turbine, and has had wide use in industry and education.

A sequel to this production has just been completed for the same sponsor by Jam Handy, *Inside a Surface Condenser.* Either picture may be used separately or the two may be used together, providing a show of about 40 minutes. Both pictures are of the strictly informational-educational type, containing no advertising. They are loaned free to any group or organization interested, or 16 mm prints may be purchased outright for permanent use.

Techniques used include interesting laboratory shots coupled with animated drawing sequences which give the student an understanding of fundamental principles and functions of modern power equipment. In contributing this condenser picture to the war training program, Allis-Chalmers has recognized the fact that, because power plants today lean heavily on surface condensers for the new high efficiencies, engineers, students, men of Government, industry and the Armed Services can profit by a more detailed understanding of the surface condenser.

Principles of condensation are pictured by means of closeup laboratory shots — "a warm vapor plus a cool surface equals condensation" — which introduces animated treatment showing a cutaway of a condenser chamber as the steam condenses on the surface of the tubes. Another sequence shows the construction of the condenser by assembling a typical unit, while animated treatment also shows a simple power plant cycle showing how and where the surface condenser fits in, and how it increases efficiency.

For the loan of prints of either or both of these films, address The Allis-Chalmers Mfg. Co., Milwaukee.

University of Chicago Acquires Eastman Classroom Films

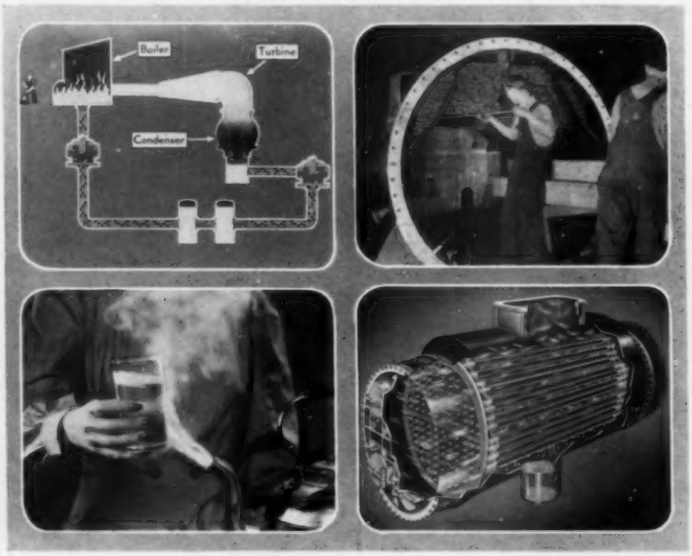
★ President Robert M. Hutchins of the University of Chicago has announced the University's acceptance as a gift of the Eastman Classroom Films, with its vast library of silent educational movies, from the Eastman Kodak Company.

The acquisition comprises some 300 reels of film for exclusive classroom use and represents an investment of more than a million dollars, Mr. Hutchins said.

The new library will be combined with the 200-reel sound film collection of Erpi Classroom Films, which was acquired recently by the University from the Western Electric Company. Like the Erpi set, the Eastman films will be distributed by Encyclopaedia Britannica Films, Inc., subsidiary of Encyclopaedia Britannica, Inc. Britannica was given to the University in January, 1943, by its owner, Sears Roebuck & Company.

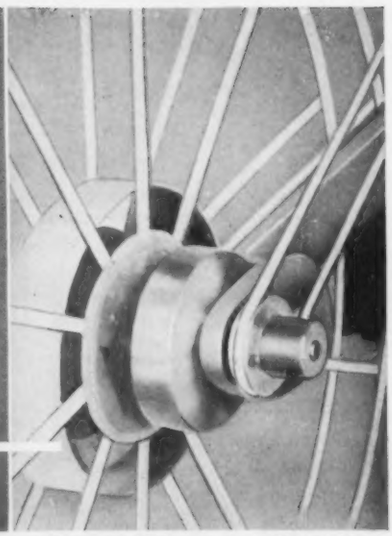
Editor's Note: A feature article on the new Chicago film program is in preparation for an early issue.

(Below) Scenes from Allis-Chalmers' "Inside a Surface Condenser"



HERE'S THE END OF YOUR TAKE-UP TROUBLES

It's the New RCA Even-Tension Take-up



Close-up of the even-tension RCA friction-drive shows its simplicity and compactness

THIS is a preview of the kind of improvements you can expect in RCA post-war 16mm. sound projectors. The new RCA friction-drive take-up, which is proving highly satisfactory in wartime equipment, will be just one of the many reasons you'll want RCA projectors when they again become available for civilian purchase.

The new take-up is so smooth in action — so dependable — so trouble-free — that it stands far ahead of the field. Its smooth performance means:

No jerks or tugs ***No pulled splices***
No broken belts ***No film damage***
No film piled up on the floor

Here's the special RCA 16mm. projector designed to meet the rigid specifications of government service.

HOW IT WORKS: This new RCA take-up is belt-driven. The friction-drive consists of two concentric cylinders — the outer cylinder driving the inner one through friction on a layer of felt. As the film winds on the take-up reel, the increasing weight causes proportionately increasing pressure on the felt. Thus even tension is maintained automatically. There are no springs or gadgets to get out of adjustment.

OTHER FEATURES: The new RCA projectors will include other important advances in projector design, too, such as the RCA removable gate which makes for easy cleaning; single-point lubrication; built-in amplifier; single-side operation; low mechanical noise; improved rotary-stabilizer for high-stability sound; efficient ventilation, which eliminates hot-spots at the top of the projector.

AVAILABILITY: Military demands mean that these new projectors are not now available for civilian use. But when you buy for post-war needs, be sure you see the new RCA projectors first. RADIO CORPORATION OF AMERICA, *Sound and Picture Section, Camden, New Jersey.*

RCA 16MM. PROJECTORS

RCA

BUY WAR BONDS

RADIO CORPORATION OF AMERICA

RCA VICTOR DIVISION • CAMDEN, N. J.

LEADS THE WAY . . *In Radio . . Television . . Tubes . . Phonographs . . Records . . Electronics*

NEWS of the Visual Industry

• APPOINTMENTS • AWARDS • EVENTS OF NOTE •

Chester C. Cooley

♦ Mr. J. C. Heck, President of Da-Lite Screen Company, Inc., Chicago, announces the election of CHESTER C. COOLEY as Vice-President in charge of sales and advertising.

Mr. Cooley has been with the Da-Lite Screen Company for 18 years. He has had broad experience in both the production and sales departments and is thoroughly familiar not only with his company's products, but also with the needs of Da-Lite customers. Mr. Cooley is widely known among wholesale and retail distributors of photographic, theatre and visual education equipment.

DeVry Gets Army-Navy Star

★ To a pioneer in the manufacture of motion picture sound equipment in a city which harbored the beginnings of the motion picture industry has just been awarded a signal honor.

DeVry Corporation, 1111 Armitage Ave., pioneer manufacturers of motion picture sound equipment has been notified of its receipt of the second white star for its Army-Navy "E" Flag—denoting continued production excellence for the war effort on the part of its personnel.

Writes C. C. Bloch, Admiral USN (Retd.) Chairman Navy Board for Production Awards, to DeVry President William C. DeVry under date of March 30, from Washington:

"It is a pleasure to inform you that the Navy Board for Production Awards has granted the Armitage and Wolcott Avenue Plants of the DeVry Corporation a second renewal of the Army-Navy 'E' Award for meritorious service on the production front.

"The men and women of your plants have continued to maintain the high standards they set for themselves when they were originally awarded the Army-Navy 'E.' They may well be proud of their achievement.

"There are being forwarded to you two new pennants with two stars affixed to each which should be received in the near future.

"The additional white star, which the renewal adds to your Army-Navy 'E' flags, is the symbol of appreciation from our Armed Forces for your continued untiring effort and support so necessary for victory."

DeVry is the only concern in the United States to be thus honored for the manufacture of motion picture sound equipment and secret electronic training devices incorporating motion picture projection principles developed by DeVry's founder, the late Dr. Herman A. DeVry, inventive genius in the motion picture industry and a pioneer in the field of visual education by means of movies.

du Pont Film Academy Winner

★ Research which resulted in improved motion picture films with reduced inherent noise won an award for E. I. du Pont de Nemours & Company, from the Academy of Motion Picture Arts and Sciences, for scientific achievement in 1943, it is announced by the company.

An accompanying citation said the award was presented in recognition of "significant improvements in the quality of sound and picture as heard and seen in the theater."

"Inherent film noise has been substantially reduced" by the development and "a more pleasing and faithful reproduction of the original sound and an enhancement of the quality and entertainment value of the finished picture" have been made possible, the citation said.

New Filmosound "V"

♦ Like so many other new, improved products, the Filmosound V . . .—is available at this time only to the armed forces and for other essential purposes according to prevailing government directives. This compact, sturdy, precision-built, easy to operate product of Bell & Howell engineering achievement is being used today to project the sound movies that bring a smile to a tired soldier's eyes; to project lifesaving training films on movie screens in every theater of war, in every branch of service.

But there will be an end to this war, too, and then the Filmosound V . . . - will be available for civilian use. Priority will be a word out of the history books, and *everyone* will be able to preview this latest of Filmosounds in the salesrooms of the local B & H dealer.

Until that day, however, we can dream, and dreaming can be based on the reality of the new B & H Filmosound V . . .- as described in the latest edition of the Filmosound folder. This folder, which is available upon request from Bell & Howell Company, 1801 Larchmont Avenue, Chicago 13, describes the features of the Filmosound V . . .- so that every potential owner may have a clear picture of what the Filmosound of tomorrow has to offer.

Heads New York Office

♦ The appointment of HAROLD ACKERMAN as head of the recently opened New York office of Visual Training Corporation, Detroit, was announced by Genaro A. Florez, President of the Company.

Mr. Ackerman, who is a graduate electrical engineer with practical experience in the field of training media, will service the technical accounts in the East for which Visual Training Corporation is preparing AN Manuals and other training materials, including slidefilms and motion pictures.

Harold Ackerman

☆ ☆ ☆ *IN STEP*

. . . with a permanent and growing staff, complete facilities and the experience of years in the production of films that do their jobs well—these are AUDIO assets which answer the call of INDUSTRY and GOVERNMENT for services urgently needed in those all-important tasks of training on every front.

AUDIO PRODUCTIONS, INC.

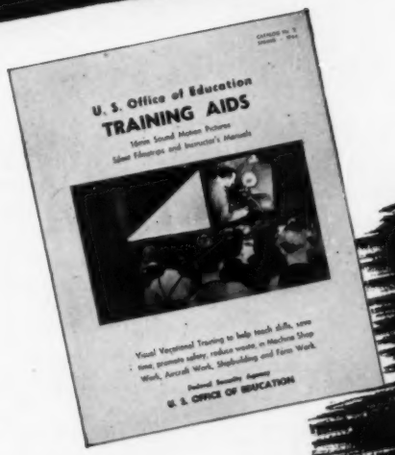
630 Ninth Avenue • New York City

Film Center Building

FREE! NEW CATALOG

describing all 95 available

U. S. Office of Education


U. S. Office of Education
TRAINING AIDS
16mm Sound Motion Pictures
Silent Filmstrips and Instructor's Manuals
Visual Vocational Training to help teach skills, save time, promote safety, reduce waste, in Machine Shop Work, Aircraft Work, Shipbuilding and Farm Work
Federal Security Agency
U. S. OFFICE OF EDUCATION

TRAINING FILMS!

VISUAL AIDS FOR VICTORY!

Here is a new and complete catalog of value to every industry . . . every training school in the United States! It describes every one of the films now available . . . both those released last year and NEW ones released this year. It gives data, prices . . . tells you about the new film strip and instructor's manual available with *each* film!

WIDE RANGE OF SUBJECTS!
Machine Shop . . . Aircraft Work . . . Shipbuilding . . . Farm Work

When you go through the new free catalog you will discover that you have available films on precision measurement, engine lathe, milling machine, vertical boring mill, radial drill, sensitive drill, vertical drill, bench work, shaper, single point cutting tools, 25 films on shipbuilding—from surfacing foundations to installing pipe; films on aircraft work that range from sawing template metal to tube bending; films on repairing farm machinery, canning, sheep shearing.

While films are arbitrarily listed under different classifications—all industries having machine shops will find machine shop films valuable. The aircraft industry and the machine shop industries will find many of the shipbuilding films applicable to their own businesses. Shipbuilders will find that they can use many allied films. And manufacturers of farm machinery, wool buyers, and canners will find the agricultural subjects of value. All the films are part of an integrated program to help you increase efficiency and production.

PHENOMENAL RESULTS!

U. S. OFFICE OF EDUCATION films were used last year —are being used now—by *every key manufacturing plant . . . every major training schoool . . . in the United States.* Users have discovered that the films help to cut time, cut waste, and increase efficiency of production. They can help you speed victory now . . . AND . . . build towards higher efficiencies in the postwar world!

ACT NOW! To appreciate fully what this program of visual education can mean to you, send for the free catalog without delay. When you receive it, study its pages carefully. See how you can use the films effectively . . . today, and in the future!

CASTLE FILMS INC.

Distributor for
THE UNITED STATES OFFICE OF EDUCATION

SEND COUPON TODAY NOW!

SAVE TIME, AND INCREASE EFFICIENCY WITH "THE SLIDE RULE," NO. 179!
(The "C" and "D" Scales)

Last year, "THE MICROMETER" helped to teach thousands of workers how to use this all-important precision tool. "THE SLIDE RULE" is a companion film of equal basic importance. It helps to teach through seeing . . . through hearing. Simply. Quickly. Clearly. Animated diagrams help to give the worker a quicker understanding. Use this visual aid now for Victory! Price:

16 mm. Sound Motion Picture	**$30.67**
Coordinated Film Strip	**1.00**
Complete Visual Unit	**31.67**

CASTLE FILMS, INC.

30 ROCKEFELLER PLAZA, NEW YORK 20 | **FIELD BLDG., CHICAGO 3** | **RUSS BLDG., SAN FRANCISCO 4**

Address nearest office

Please send the FREE catalog describing all U. S. OFFICE OF EDUCATION TRAINING FILMS.

*Name*_____

*City*_____ *State*_____

*Organization*_____ BB 7

Screen Aids to PRODUCTION

A VIVID, fast-moving motion picture that dramatically points up safe methods of handling portable power tools is *For Safety's Sake*, produced by Sarra, Inc. in Hollywood, and now available for use by war plants and training schools. *(Announcement on page ten.)*

This is the story of Joe Worker, representative of 50,000,000 other "Joe Workers" in the war effort today, who is a good, hard, experienced worker but who is inclined every once in a while to take "just one chance" on the job.

Joe's chance was not grounding an electric drill—a chance that could have cost his life but sent him, bandaged and wiser, into the office of his company's safety director to report his accident instead.

The safety director, Charles Adams, is explaining some points of safe tool operation to a couple of new workers and invites Joe to sit in on the discussion and add some pointers of his own.

Some of the other safety points covered:

DRILLS: Clamp firmly in vise while drilling.

GRINDERS: Grip it firmly.
- Keep moving wheel away from body.
- Protect eyes.
- Use proper type of grinder wheel for each type of job.
- Correct manner of mounting grinder wheel.
- Hazards in using cracked grinder wheels.

SAWS: Automatic guards usually are installed, but keep hands away from line of cut.
- Don't force saw into work.
- Cautions in safe handling of saw blade.
- Explanation of trigger-type switch (as on most power tools).
- Don't hold work in hand.

ALL ELECTRICAL TOOLS: Grounding the tool, with clamps and with three-wire cord.
- Proper handling of electrical tools.
- Care of electric cords.
- Proper methods of carrying tools.
- Repair of tools by proper factory departments.

ALSO: Ten Commandments in Safe Handling of Portable Power Tools from National Safety Council. Closing explanation of ten top points of safe handling.

The production staff included these well known personalities: *Technical Advisor:* Glen Griffin, safety engineer of National Safety Council; *Writer:* Joe Betzer; *Photography* by Frederick Gately; *Producer:* Ray Ballard; Associate Producer, Harry Lange.

Birmingham war workers see regular 16mm film showings

★ In the Birmingham, Alabama, plant of Chicago Bridge and Iron Company the latest serials are being shown on 16 mm film at the noon hour and between shifts on Mondays and the day after pay-day, to the hundreds of employees of the company. Since the introduction of the serials in the regular entertainment program of news and morale releases, absenteeism has shown a marked decline on the days which were formerly the worst. Apparently war workers do not want to miss the stratagem by which "Pauline" extricates herself from her peril.

The Victor Animatophone, 16 mm sound projector, which provides the rest-period entertainment is also used extensively in the company's training program for new employees.

Gutlohn Announces Release of "Norway Replies" Feature

♦ *Norway Replies*, which had its world premiere the end of February, is now available in 16 mm sound film from Walter O. Gutlohn, Inc., New York City and its branch libraries throughout the country.

This timely, dramatic feature film tells the thrilling story of a young Norwegian who escapes from Norway following a Commando raid. The picture shows the training he receives in England before he wins his wings and returns to wreak vengeance on the Nazis. Thrilling word pictures of Norway's brave fight are drawn by three of America's leading radio announcers—Ed Thorgerson, Alois Havrilla and Ben Grauer—who do the commentary.

The story is told against a background of authentic information and shows Norway's merchant marine carrying on a vital job in helping to win the war and the other major activities of Norway in the fight against Fascism.

Such outstanding world personalities as President Roosevelt, King Haakon VII, Premier Johan Nygaardsvold and Crown Prince Olav are pictured in the film which was produced under the supervision of the Royal Norwegian Information Service. *Norway Replies* is available for rental and sale. Six reels.

Get Recruits in Canada

♦ News of what's happening in the War and Canada's share in the fighting is being brought to isolated sections of the North Woods and the Arctic regions by a travelling Victor 16 mm Sound Motion Picture outfit of the Canadian National Film Board. Operated and transported by three members of the Canadian Armed Forces, this mobile unit is effectively aiding the recruiting efforts in regions which could not otherwise be reached with visual propaganda. The recruiting films use French or English sound tracks, depending on the language of their audience.

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NEWS-REEL

Photo & Sound Expands

♦ Increased demands for the production of war training films in the Bay Area has made it necessary for Photo & Sound, Inc., of San Francisco, to expand its facilities and move to larger quarters. The entire Film Production Division is now located at 606 Montgomery Street, where there are stages for two crews to work simultaneously, complete art and animation facilities, spacious editing rooms, and editorial and office space.

Behymer in Visual Training

♦ The addition of CHARLES E. BEHYMER to the staff of Visual Training Corporation was announced by Genaro A. Florez, President of the Company.

METAL SCREENS AVAILABLE

♦ Under a new War Production Board regulation, just released, industrial plants and factories are again able to show the many available newsreels, war-training and entertaining films. While formerly it was necessary to file a special form 1319 with W.P.B., this has been eliminated.

Your M.R.O. Rating is all that's necessary to purchase Radiant's new streamlined line of 1944 screens. They are available for *immediate delivery* in a variety of six models (DeLuxe Portable Tripod Type, Wall Type, Ceiling Type) in sizes from 30″x40″ up to 20′x20′ to fill all requirements.

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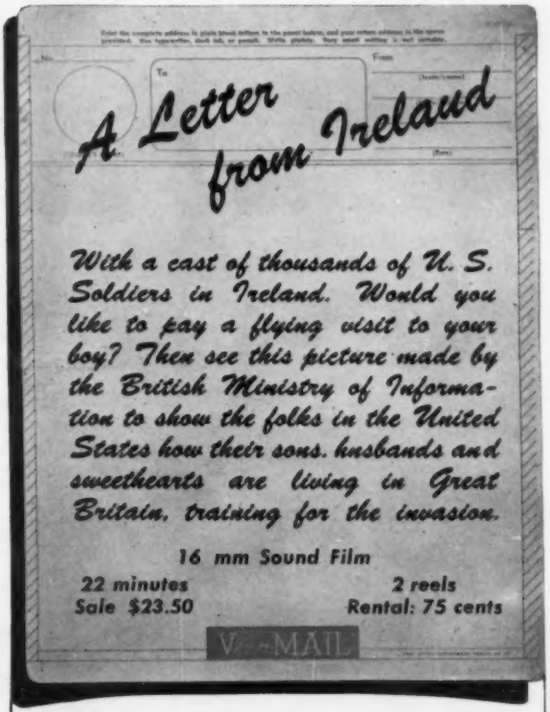
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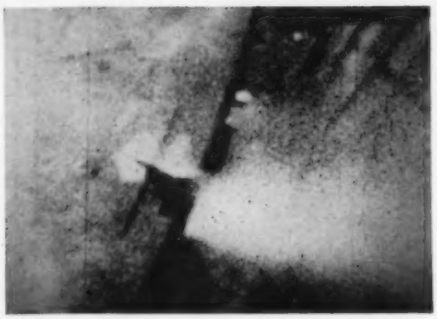


In these exclusive BUSINESS SCREEN film blow-ups from the official Eighth Air Force motion picture "Target Germany," the action of high speed Bell & Howell automatic gun cameras shows the actual disintegration of Nazi planes under fire of our gunners. (Official U. S. Army photos.)

(CONTINUED FROM PAGE 19)

desired performance may be found; at this time there is more improvement to be made than there will ever be at any other time, as later some of the discrepancies will have been eliminated by whatever means there is available. Since mechanical development has preceded by considerable time the development of methods of fast motion analysis; so many things which have not been analyzed are already in use that there appears to be more opportunities for work on existing devices, particularly with regard to new applications, than for pioneer work at the time of origination of new devices. It is most essential that all attention be given to possible improved designs before decisions on specifications for quantity production of a device are arrived at. Information that is acquired later might have been of use if it had been known before the decision for quantity production was made; but once that has been made, the benefits to be derived from any improvements that could be put in may be more than offset by the disadvantages involved in trying to incorporate them into already finished production. In the war period, when time is at a premium, it is necessary to make decisions quickly and compromise any possible future improvement with the advantage of having what is now on hand available in quantity at an earlier date. It is imperative that what is done in the field of fast motion analysis be completely accomplished in the minimum time while it can still be used.

ALSO STUDY STANDARD EQUIPMENT

As contrasted with the difficulties encountered in current development, there is value to be obtained through the studying by many people, of regular operating of standard equipment. Since the standard equipment may be used as component parts in many different assemblies, general knowledge of what happens during its regular functioning may facilitate the origination of better methods of employment of such equipment by those who are to use it as units in their designs of larger assemblies.

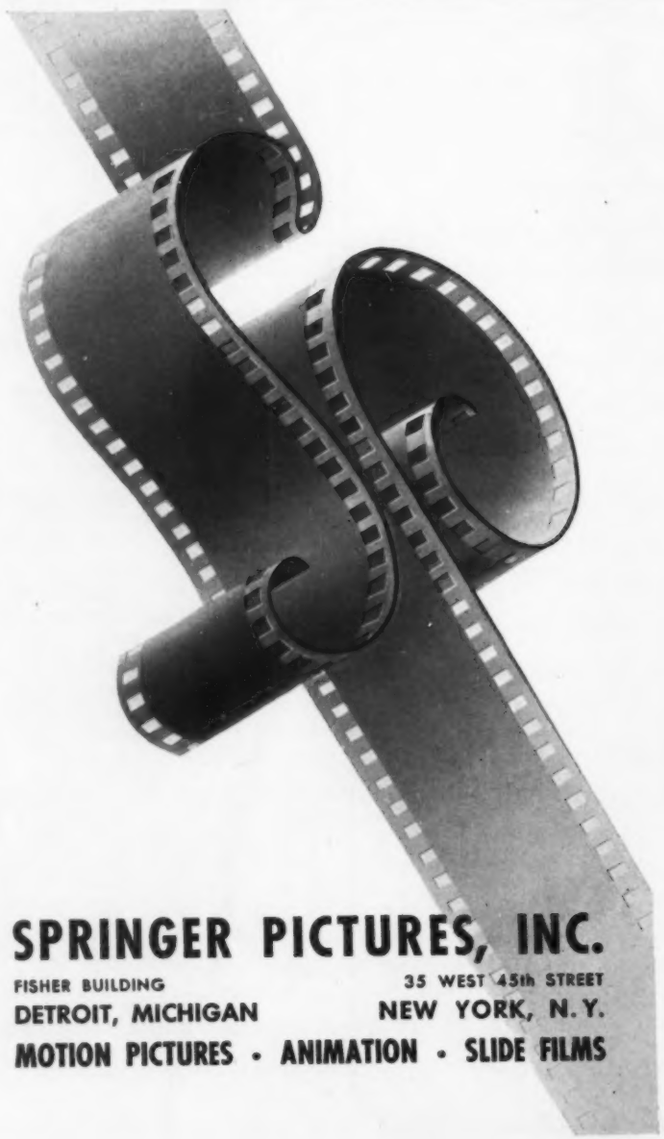
FAST MOTION ANALYSIS AS AN AID TO ORGANIZED INVENTION

There is now a question of how a fast motion analysis activity may be fitted into an already existing organization. Much depends on finding personnel who may be interested in, and adapted to, doing the kind of work needed. It is noted that, with the limited experience up to the present, no conclusive answer can be given to this, but it is believed that, in general, the purchase of a high speed motion picture camera for placing in the photographic department of an establishment is not the best way to go about this. Instead of making the fast motion analysis activity an appendix to an existing activity of still and ordinary speed motion pictures, the point of view should be more that of a development project, since considerable original thought and pioneer construction is involved in devising and reducing to practical methods the means for best obtaining the different kinds of data needed. Reasons for not just simply adding this activity to the work of the photographic section are mentioned more fully in the following paragraph.

WHEN SPECIAL APPARATUS NEEDED

In order to record adequately extremely fast motions and to interpret the data therefrom, it may be necessary to construct special apparatus and to use complicated processes which are as involved as determining the interface distances of crystals from the photographic record made on an X-Ray diffraction camera or the weights of molecules from the photographic record made on a mass spectrograph. Photography may not even be necessary for making records of certain kinds of performances, and of course it does not enter into the interpretation, which may be found to require a longer time than performing the experiment. It appears that the best arrangement for carrying on such an activity is to have it done by people experienced in developmental engineering, so that the evidence, when revealed, will be quickly evaluated with regard to the project and so that adjustment of subsequent procedure may be made with a view to further development of the technique employed.

Furthermore, there are other fac-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tors to be considered with regard to the introduction of a high speed photographic activity. The actual amount of use expected to be given to the photographic device employed in this activity can be gathered from the curves of Fig. 8. At first, the

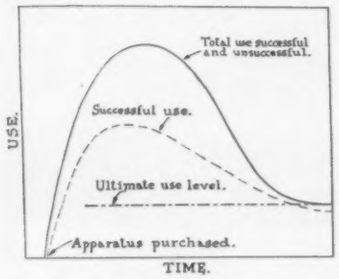

FIGURE EIGHT

novelty of the device and the fact that some applications may be long-standing will provoke a high level of use; this is represented by the heavy line. Then it will be used many times where useful results will not be obtained; this is represented by the space between the solid and dotted lines. Finally, the ultimate use of the camera, after the novelty has worn off, and the longstanding applications have been tried will settle down to the level of the dot-and-dash line. Thus, in starting a high speed photographic activity, one must not expect the device used to maintain the high level of its initial employment.

CONDITIONS ARE NOTED

Returning again to (Table 1) there is portrayed opposite "Results" the condition where further changes in the device are necessary to get the desired performance. As may be seen, this is the conclusion to be drawn after the data has been taken, prepared, and analyzed. The next step is to try to make the changes necessary in the device to accomplish the desired action. It is not always easy to decide just what to do in every instance, because sometimes inventive ability is not adequate for the occasion. But it is necessary to do whatever seems to be the most likely to accomplish what is needed. When these changes have been made, the device is again ready for more data to be taken and for the test cycle to be followed through again. It may be necessary to do this several times before arriving at a conclusion of success or failure. If the changes accomplish the desired results, then it can be said that the job is complete as far as the present requirements are concerned and success has been attained. On the other hand, it may be found that what is desired has not been accomplished, and it appears for the present there is little prospect of its being done. In order to make the most progress in the development of apparatus, things to be done should include not only the obvious items but also those where the method of doing them can only be found by many trials or may not even be possible until some subsequent development or invention provides the methods or material needed. More briefly, this means that not only the easy but the difficult things should be tried. Failure to get results by fast motion analysis may come from a number of things such as the fact that: (1) methods used in analysis are not suitable for the kind of investigation at hand; (2) conditions believed to be present are found to be non-existent, and the discrepancy is due to some other cause; (3) conditions are found to exist for which no remedy can be immediately devised.

SIZE IS A FACTOR

High speed pictures are best when the undesired motions looked for are fairly large and take up more than five per cent of the diameter of the picture area. There is considerable leeway, as there is a wide choice of picture area. In general, this method of analysis is best for reciprocating motions, where motions of parts are irregular and do not follow any well defined path, or where articles are grasped, transported and released.

With reference to the analysis of fast motions, we find not only a problem in the technique of obtaining data but also a problem in the psychology of the minds of the people who are to use it. The latter perhaps is the more important, because it involves individuals as separate units, whereas technique once developed is usually universally applicable. People vary in their background of experience and reaction to ideas. Getting various people together in a discussion might bring out some ideas which would never be thought of by these people individually.

ALL SHOULD USE DATA

The data itself should be used in such a way that not only the individuals who are primarily interested have opportunity to study what took place, in order to utilize their abilities for the purpose of making improvements, but that others who might possibly contribute ideas for the successful completion of the problem could also review this data. Under conditions of this kind it is very difficult to draw

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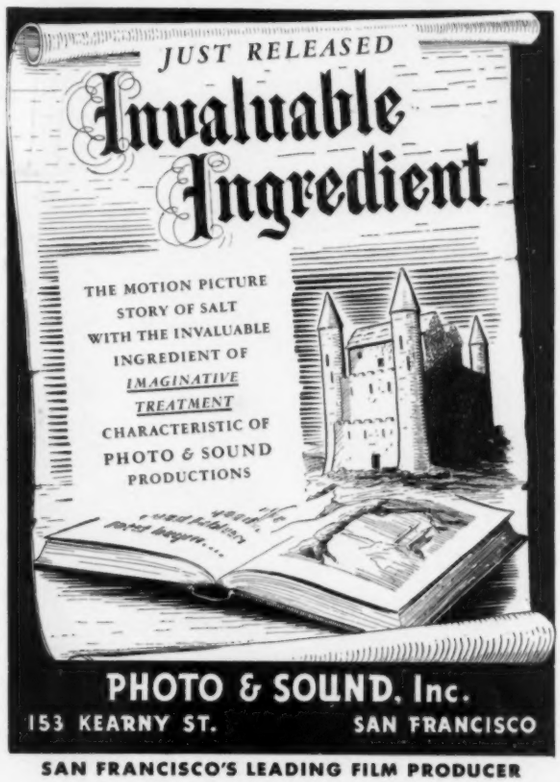
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THE FIRST ANNUAL Audio-Visual Education conference, sponsored by Dr. Vierling Kersey, Superintendent of the Los Angeles City Schools, and Mrs. Gertrude Rounsavelle, President of the Board of Education of the City of Los Angeles, was held on March 24, 1944, at the Audio-Visual Education Section. Because of limited facilities, invitations were sent to a restricted number of people who are vitally interested in the audio-visual education program.

Following registration, approximately 175 conferees gathered for the General Session. Dr. Raymond E. Pollich, Assistant Superintendent of the Los Angeles City Schools, and General Chairman of the Conference, introduced Mrs. Rounsavelle, who in turn welcomed the group.

KERSEY PRESENTS BROAD VIEW

Superintendent Kersey was introduced; he presented many current teaching problems and the potentialities of the audio-visual program. He gave an overall point of view of the schools, mentioning that we are not going to have a new education after the war, because of the war, during the war, in order to win the war. We are not going to have a changed economic structure or a changed social order to the point of newness of economic system, but the advances that are going to be made will be in the nature of constructive changes.

Continuing, he said in effect that the armed forces have taught us how to be successful in the war effort—that we can learn more, that we can learn it better, and that we can learn it faster, and that there need be no extraordinary cost in order to learn that way. Study has been made on why there has been this eminent success in getting more learning in shorter time with deeper meanings. It seems to center around the consolidation of several attentions to the job in hand—the consolidation of the five factors of hearing, seeing, feeling, sensing, and thinking. By consolidation of these factors we have the best, the most effective, and the most rapid learning.

FIVE SECTION MEETINGS

From the General Sessions, the conferees disbursed into five groups to attend section meetings simultaneously held in various rooms. The topics and the respective chairmen were as follows:

How Teaching Is Improved By the Use of Audio-Visual Tools—Dr. Charles J. Falk, Assistant to the Superintendent, San Diego City Schools; *Basic Equipment Necessary for an Adequate Audio-Visual Program*—Dr. B. F. Enyeart, Superintendent, Burbank City Schools; *Standards in the Selection of Radio Program Material for Classroom Use*—Dr. W. K. Cobb, Superintendent of County Schools, Ventura; *Audio-Visual Materials for Today and Tomorrow*—Dr. Raymond E. Pollich, Assistant Superintendent, Los Angeles City Schools; *The Contribution of Sponsored and Commercial Materials to the Audio-Visual Program*—Mr. Bruce A. Findlay, Head Supervisor, Audio-Visual Education Section, Los Angeles City Schools.

The afternoon General Session was called to order by Chairman Raymond E. Pollich.

CLEVELAND was host to the First Northern Ohio Visual Aids Conference, April 3rd and 4th at the Hotel Hollenden. Five sessions were held in all, two on Monday and three on Tuesday.

While primarily the conference attracted educators, such as teachers, principals, and school superintendents, the programs were so broad in scope that many war plant personnel and training department representatives were in attendance.

The 16 mm film has taken its place beside books on the shelves of the modern public library and is a vital tool in the adult educational programs of such institutions, according to R. Russell Munn, Director of Adult Education of the Cleveland Public Library. Films aid the adult program at the library.

Cleveland's Mayor Praises Visuals

MAYOR OF CLEVELAND SPEAKS

In the first evening meeting of the conference, Mayor Frank M. Lausche of Cleveland said that education was of prime importance in winning the home front portion of the war, and that visual aids, contributing to the excellence of democratic education were of direct importance to the winning of this war.

Superintendent of the Cleveland schools, Charles H. Lake, urged better relation of visual aids to curricular content, improved classroom techniques in using them, and reduction in film costs.

According to B. A. Aughinbaugh, Supervisor of the Ohio Slide and Film Exchange in Columbus, the sense of sight is of such overwhelming importance in education that a part of its future may well be dependent on the progress made in direct use of visual aids in learning.

Lieut. Carl A. Heintz of the Ninth Naval District Coast Guard, substituting for Commander Patrick Murphy, U.S.C.G. Chief of the Training Aids Section, Washington, D. C., who was unable to appear, said the use of films by the Coast Guard over the last two years had speeded up training processes and increased absorption of knowledge tremendously.

KEYNOTE ADDRESS BY HODGE

A highlight of the conference was a luncheon meeting in which Thomas Hodge, Film Officer of the British Information Services, Chicago, made a plea for a greater exchange of honest films among the United Nations. Such films will give a keener appreciation of each nation's problems and lead inevitably to greater tolerance. American films showing the activities of nationality groups left a deep impression in England, according to Mr. Hodge.

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MOTION ANALYSIS

(CONTINUED FROM PAGE 31)

the line where diminishing returns in useful suggestions make attention from others not primarily interested in the problem unprofitable.

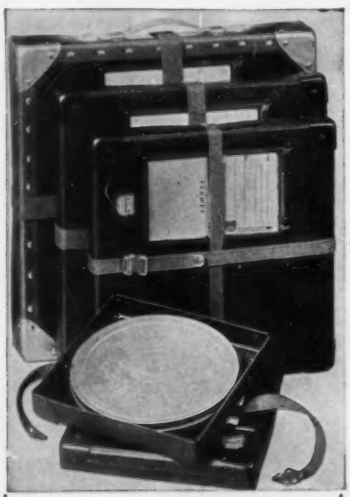
In general, data may be divided into the two classes of special modifications during the steps of apparatus development and regular operations of standard apparatus. In the case of apparatus development, perhaps only a few people known to have worked on similar problems could profitably take working time to review the data. It must be recognized that with respect to the working time available, a choice of spending this time reviewing data and advising others materially handicaps one's own activity. In the case of regular operation of standard apparatus, it is of greater importance that people who are involved in the improvement and adaptation of this apparatus to specific jobs should study its operation. This interest may be not only in the establishment where the pictures are taken but at many other establishments where design work is done, where the devices are manufactured, and where they are fitted as component units in the assembly of larger pieces of apparatus in which they will have their ultimate use.

A condition to be avoided is the disturbing of the peace of mind of those in charge of projects being studied by others who may attempt to improve their standing at the expense of those in charge of the projects. In showing pictures to others, there should never be the thought that the necessity for taking the pictures indicated inability of the people for whom they were taken to solve their problem without aid. There should be no appearance of change in the responsibility as to who decides what should be done in the program of trying various modifications thought profitable: All suggestions and interpretations of things seen should clear through the people who are directly responsible for carrying out the program of improvement.

Conditions here are different from those usually encountered. Ordinarily the person in charge knows what is to be done by reason of having previous experience in less responsible positions and can direct the work accordingly. Where inventive work is done, the person looking after it can only try to encourage excursions of the minds of those in his group into fields which are entirely strange to him. A person's efficiency in routine jobs may not be greatly affected when he is annoyed by conditions about him, but creative work is inestimably handicapped when the minds of the people involved are disturbed.

High speed motion pictures have a unique application in training film. For the most part in training film normal speed motion pictures are used to show the latest and most advanced procedure, in order that the trainees may repeat this procedure when practicing with the actual pieces of equipment previously viewed. Under these conditions there is sufficient time for mental reactions to take place as the trainee adjusts his procedure, using actual equipment, in an effort to follow the approved procedure previously demonstrated.

Action which may require several seconds to show, but which takes place in a fraction of a second, happens too fast for anyone to make a decision while it is under way. The showing of such fast action may give the viewer a better knowledge of performance of devices he must use, thus increasing his confidence, but unless several situations are shown illustrating the effect of proper and improper preparation before the fast action is caused to take place, there will be little training value derived. In some instances normal speed views of proper and improper preparation followed by fast action pictures showing the results therefrom will have training value.



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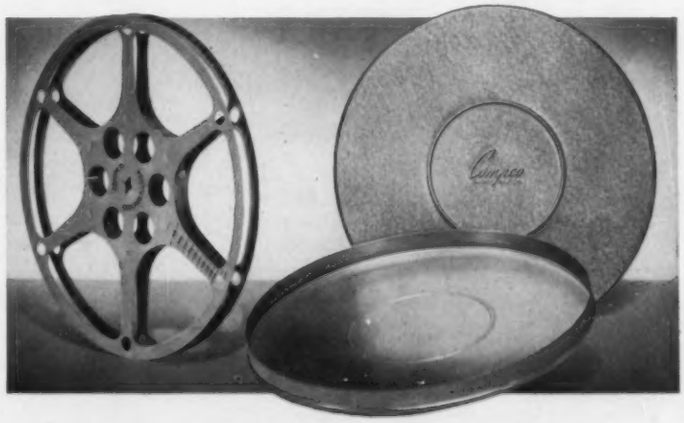

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The Jam Handy Organization, Inc., 2821 E. Grand Blvd., Detroit 11, Mich.

MINNESOTA

Film Preview, 1504 Hennepin Ave., Minneapolis, Minn.

OHIO

Ralph V. Haile & Associates, 215 Walnut St., Cincinnati, Ohio.

The Jam Handy Organization, Inc., 310 Talbott Building, Dayton, Ohio.

Twyman Films, Inc., 29 Central Ave., Dayton 1, Ohio.

Martin Sound Systems, 610 State Ave., N. E., Massillon, Ohio.

Cousino Visual Education Service, 1221 Madison Ave., Toledo 2, Ohio.

WISCONSIN

Photoart House, 844 N. Plankinton Ave., Milwaukee, Wisc.

WESTERN STATES

CALIFORNIA

Donald J. Clausonthue, 1829 N. Craig Ave., Altadena, Calif.

Ideal Pictures Corp., 2408 W. 7th St., Los Angeles, Calif.

The Jam Handy Organization, Inc., 7046 Hollywood Blvd., Los Angeles, Calif.

Screen Adettes, Inc., 1709 W. 8th St., Los Angeles 14, Calif.

Carroll W. Rice, 19 Estrella Ave., Piedmont, Oakland 11, Calif.

Screen Adettes, Inc., Sixty-Eight Post Bldg., 68 Post St., San Francisco 4, Calif.

Herbert M. Elkins, 10116 Ora Vista Ave., Sunland, Los Angeles Co., Calif.

COLORADO

Ideal Pictures Corp., 1739 Oneida St., Denver, Colo.

OREGON

Ideal Pictures Corp., 915 S. W. 10th Ave., Portland, Oregon.

Moore's Motion Picture Service, 306-310 S. W. Ninth Ave., Portland 5, Ore.

Screen Adettes, Inc., 314 S. W. Ninth Ave., Portland 5, Ore.

TEXAS

National-Ideal Pictures, 2024 Main St., Dallas, Texas.

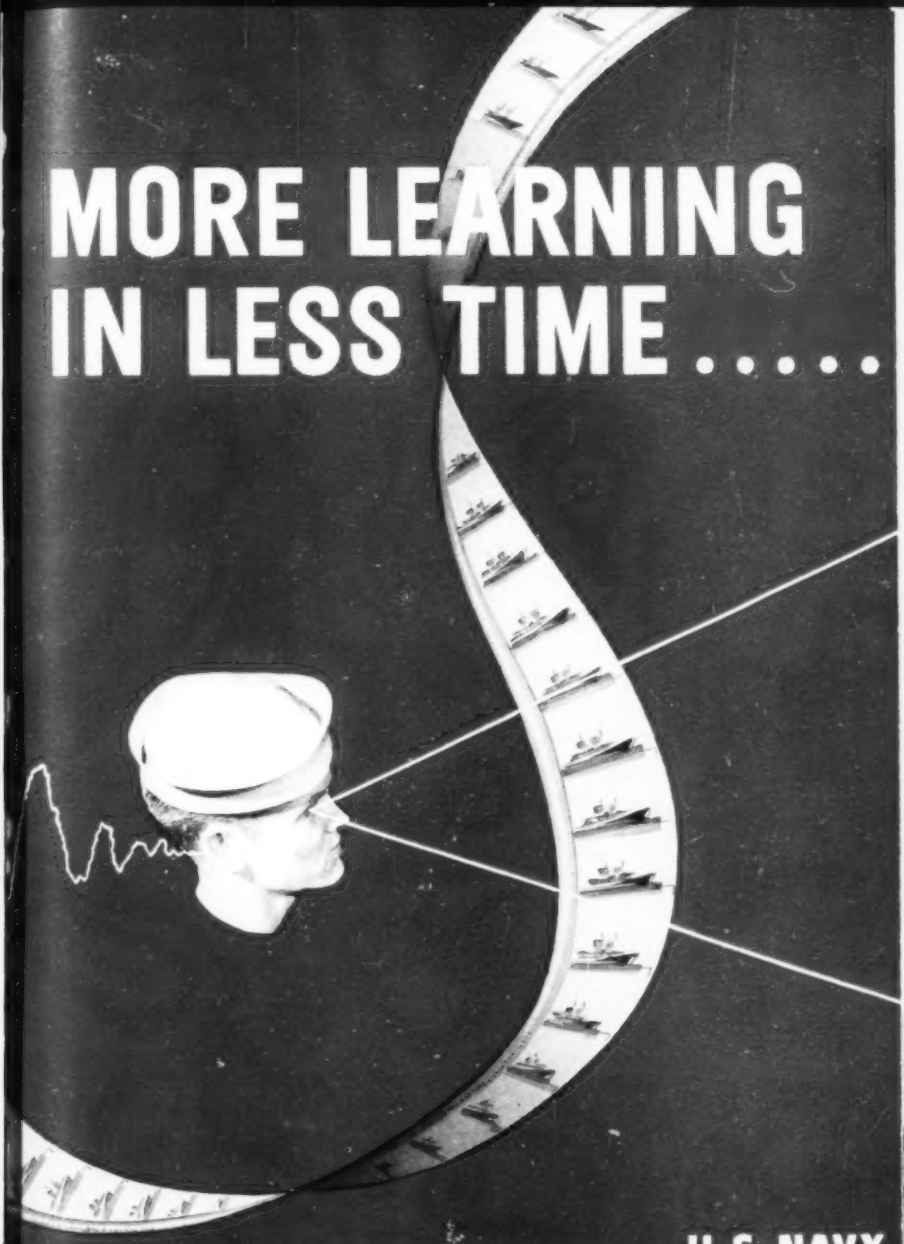
Visual Education, Inc., Twelfth at Lamar, Austin, Texas. Also, 216 Gulf States Bldg., Dallas 1, Texas.

HAWAII

Motion Picture Enterprises, 121 S. Beretania Honolulu, T. H.

Qualified visual dealers may be listed in this National Directory on application: Address inquiries to BUSINESS SCREEN, 157 E. Erie, Chicago

MORE LEARNING IN LESS TIME.....



U.S. NAVY

TRAINING AIDS MANUAL

UNITED STATES NAVY DEPARTMENT
BUREAU OF NAVAL PERSONNEL

MORE LEARNING IN LESS TIME

Basic United States Navy Manual on the

EDUCATIONAL USE OF TRAINING AIDS

By the Bureau of Naval Personnel
Training Division, Training Aids Section
Edition of 1943

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WHAT ARE TRAINING AIDS?

1. MOTION PICTURES

Most training films are
sound pictures, 16mm. in size.

2. FILM STRIPS AND SLIDES

Film strips are
rolls of still pictures, 35mm. in size, projected in succession with matched sound on records, or with the text in titles on the film.

Slides are
made in standard size of 2″ x 2″ and 3¼″ x 4″.

3. CHARTS AND PICTURES

Many types and sizes of diagrams, maps, cards and photographs are available from many sources.

4. MODELS AND ACTUAL EQUIPMENT

Three-dimensional objects such as full scale equipment, models with movable parts, cutaway models, and solid models are among the most valuable training aids.

5. RECORDINGS

Navy recordings are usually on 16-inch discs which run at 33 1/3 revolutions per minute.

WHY USE TRAINING AIDS?

1. LEARN MORE

Tests show that students learn up to 35 percent more in a given time.

2. REMEMBER LONGER

Tests show that facts learned are remembered up to 55 percent longer.

3. INCREASE INTEREST

Training aids command attention and cause students to want to learn.

4. MAKE TRAINING UNIFORM

They help to get similar results from different schools which teach the same subjects.

5. BUILD MORALE

They give trainees confidence in their ability to do the job.

6. SAVE TIME

Training aids make it possible to meet Navy standards in less time.

GETTING UNDERWAY

IN THE USE OF TRAINING AIDS

These general rules should be followed to insure the effective use of any type of training aid.

Examine the aid to be used

The instructor should see the film, hear the recording, or examine the model, and consult the accompanying study guide. Full knowledge of the training aid will enable the instructor to use it in the right place, at the right time, and in the right way.

Arrange to use the aid

The instructor should obtain the proper equipment and material, arrange the classroom before the class meets, and check on the operation of the equipment. The assistance of a trained projectionist, or someone to handle the equipment, or to help conduct the demonstration, will save time.

Prepare the class

The instructor should inform the men as to the purpose of the training aid, what it will do, why it is presented at this time, what they will learn from seeing or hearing it, and how they should be able to apply the information gained.

Present the aid to the class

The training aid should be used by the instructor in the classroom as a definite and important part of his instruction for that period.

Follow up the use of the aid

The instructor should make a summary statement, invite comment and questions, conduct a discussion, give a test, or provide for actual practice and use of the information gained.

Return the aid to stowage

All equipment and other material should be returned to stowage as soon as it has served its purpose in the classroom. Other instructors will need it soon.

MOTION PICTURES

VALUE PROVED BY NAVY EXPERIENCE. The Navy has always been alert to adopt new training ideas when their worth has been proved by practical experience. Beyond all doubt, Navy experience has demonstrated the value of motion pictures in the training program.

It has been found that the proper use of motion picture training films strengthens and shortens training, both with forces afloat and in classrooms ashore. As a result, the Navy has developed an extensive program of motion picture production distribution and utilization to serve its varied training needs.

SPECIAL ADVANTAGES OF TRAINING FILMS. Training films can bring many experiences to the men in Navy classrooms. Here they may see the officer of the deck performing his duties aboard ship, the internal operation of the range keeper, or hundreds of other aspects of Navy duties and operations.

In countless subjects, the film re-enacts movement; analyzes functions; adds natural sound to the action or object; appeals to the emotions; and portrays life-like situations. These characteristics of the motion picture enable every man to have a front seat in Navy experience.

ROLE OF THE INSTRUCTOR. No motion picture, however useful, can do the job alone. The instructor will always be the central figure in any training program. Good results in training come basically from clear thinking, careful preparation, and personal leadership by the instructor. His ability to make

A front seat in Navy experience for every man through the planned use of Training Films.

proper use of training aids will also produce better results. A training film, or any other aid, will help most when the instructor studies it thoroughly and works it into his plan of teaching.

FILM TYPES AND USES. Training films are usually sound pictures in 16mm. width. All 16mm. films are non-inflammable. They are usually projected with portable equipment. Training films are generally used in the classroom or with small groups.

In contrast, films for entertainment purposes are usually made on inflammable stock in 35mm. width. This size, standard for theatres, calls for theatrical projection equipment. These films are for use with large audiences and are not generally suitable for training.

Some training films are designed to develop morale or to provide general information on a subject of importance to the Navy. These films may be used with groups larger than a class. The group should understand why the film is being shown and what they should get from it. In some cases, concluding or summarizing remarks may be appropriate.

The great majority of training films, however, are intended to teach certain facts or skills. They are usually short, simple and direct. Such films are not for entertainment, even though they do have a high degree of interest. They should always be used in the way Navy experience has found to be best.

HOW TO USE TRAINING FILMS. *Preview the film.* Become familiar with it before deciding to use it in class. Titles are often misleading as to content.

Select the film to fit the course. Films must be selected in terms of the purposes of the lesson and the extent to which they will contribute more than other methods or aids which might be used. As a rule, the film shown in any one class period should not be more than twenty minutes in length.

Study the Training Aids Guide. These guides are available on certain films. The guide gives a brief review of the main points to look for, a test on the film content, and suggests follow-up activities.

The motion picture vividly brings battle front experiences to Navy men in the classroom.

Plan Introductory Remarks. Based on the preview of the selected film, decide how to inform the class: (1) what the film will show; (2) why it is being shown; (3) what they are expected to get out of it.

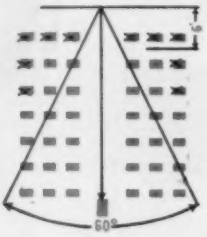
Obtain necessary equipment and assistants. All projection equipment should be set up and tested before the arrival of the class. Arrange for a projectionist if needed.

Prepare the classroom. The room should be adequately darkened, well ventilated, and comfortable.

Prepare the class to see the film. Make the introductory remarks previously prepared. It is good practice to tell the class that they will be questioned or tested on the film and will be expected to apply their understanding of it.

Project the film. Members of the class should be helped to regard training films as a specific aid to better learning. The instructor should give the same attention to the film as is expected of the class. He should not leave the room, even if he has already seen the film. The projectionist is not the assistant instructor.

Promote class discussion. The class should be encouraged to ask questions and discuss points not clearly understood. Plan activities so the class can practice what has been learned as soon as possible after film use.



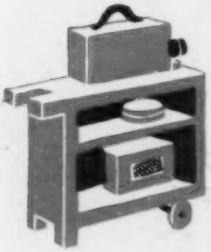
Reshow the film if necessary. Show the film again if further emphasis is needed on points not clear, or if greater skill is to be developed. If some students fail to grasp the essential points, a special showing for them is recommended.

Check on the learning. Hold the students responsible for the content of the film. This may be done by a test of actual practice, or by various types of tests. The test should deal with important rather than incidental points covered by the film.

Return equipment and film to stowage. The instructor is responsible for the care of equipment and film and for its return to proper stowage.

DESIRABLE ROOM CONDITIONS. Good ventilation is more important than total darkness. It is better to have a little light in the room than to have the class uncomfortable or asleep. Use a fan if one is needed.

Avoid using the front corner seats and those closer than 6 feet from the screen. Pictures become distorted and dim outside the 60 degree angle.



Darken the room so the projected picture is clearly visible. Any light from windows should not shine in men's eyes or on the screen.

EQUIPMENT RECOMMENDATIONS. Screens supplied by the Navy are recommended, but any flat white surface can be used. A good screen can be made on a flat surface by giving it at least three coats of FLAT WHITE paint. It should not be glossy. Aluminum paint is not satisfactory.

The bottom of the screen should be at the eye

level of the seated class. For classroom use a small bright image is better than a large, dim one.

A portable projector stand about four feet high is recommended. If this not available, any rigid support will do.

The 16mm. sound projector is standard equipment for Navy training films. Silent projectors will ruin sound films. For auditorium use, special speakers, lamps and lenses may be necessary.

TECHNICAL TIPS ON PROJECTION. The directions on the projector should be followed. Each make is different. Determine whether the current is A.C. or D.C., and also the voltage and number of cycles. If the wrong current is used, blown fuses, faulty operation, or a damaged projector may result.

In getting ready to operate the projector, locate the machine so that a satisfactory image is obtained. Be sure the film has been rewound correctly. Then thread the film carefully, making sure the film gate is clean. Next, "frame" the picture on the screen and adjust the lens to a sharp focus.

Check to see if the sound system is working. Place the speaker off the floor near the screen. Experience will determine the best location. Rethread the film so the title will appear when the machine is started. Be sure to have spare projector and exciter lamps at hand.

The best projection goes unnoticed. Poor projection is marked by distractions and interruptions. These disturbances can be prevented by following the procedure described below.

Warm up the amplifier several minutes before the projector begins to run. Start the picture before turning up the volume, then adjust the volume. Too much volume causes distraction. Use the tone control to make the sound clear.

Watch and listen to the projector while it runs. When the picture ends, turn down the volume before stopping the projector. Be sure to stop the projector as soon as the last picture has appeared. Remove the film from the projector after the class is dismissed.

Proper care and servicing are also necessary for good projection. When the machine is no longer needed, replace the cords and empty reels in the case. Then return the projector, screen, and film to proper stowage promptly. Remember to have projectors serviced regularly by competent servicemen.

A careful instructor makes the purpose and objective of the film crystal clear to his class.

FILM STRIPS

TYPES OF FILM STRIPS. The film strip is simply a roll of still pictures arranged in sequence. It is 35mm. in width. There are two types of film strips, sound and silent.

Sound film strips are accompanied by a recording which explains the pictures on the strip. In contrast, the silent film strip has titles and printed explanations on the film.

ADVANTAGES OF FILM STRIPS. Film strips are designed to present subjects where it is not necessary to show motion. They are often used to present a series of ideas or events without action. They can show close-up or microscopic views, and also a detailed explanation of an operation or piece of equipment.

Both types of film strips have certain advantages. The sound film strip is less flexible in use but insures a more uniform presentation. It also provides an approved description and gives standard definitions. The silent film strip allows the instructor more freedom in use, permits group discussion and allows detailed explanation at any time.

USING SOUND FILM STRIPS. The instructor should preview all sound film strips. He should note the points emphasized in the recording and consult the study guide, if one is available for the film.

Only a brief introduction is needed with the sound film strip. The record will carry its own story. The voice of the narrator and the picture are the center of attention. Consequently, the instructor should seat himself with the class and give the same attention as is expected of the students.

The recorded lecture has been carefully prepared by experts on the subject. Everything which it presents is regarded as important. The instructor should plan to use this assistance to the fullest extent.

One method is to provide for a discussion break when the record is turned. Another is to rerun the film without the record. This will allow the instructor to discuss the important points.

If time permits, the film and record should be run together another time. This is important when the purpose is to teach a uniform method of operation. It also helps to insure a common understanding of the ideas presented.

USING SILENT FILM STRIPS. The silent film strip, too, should be seen by the instructor before using it with the class. At this time he should list the

points he wants to emphasize. He should also consult the study guide.

In using the silent film strip, the instructor will usually stand near the screen. Explanation or discussion can then take place while the film is being shown. Where necessary, the film can be stopped to allow for questions or discussion. By using a pointer, the instructor can direct attention to specific things.

Silent film strips should be "paced" slowly to allow ample time for all to read. The class room can be arranged to use the film strip and the blackboard at the same time. When this is done, the room lighting should be turned up to allow for more detailed explanation on the blackboard. Many film strips contain a large number of facts and require detailed explanation, especially when used without sound.

PREPARING THE EQUIPMENT. The following suggestions are intended to supplement the manufacturer's instructions for the equipment being used.

The steps in getting the projector ready are the same for both sound and silent film strips. First, place the machine in line with the screen so as to secure an image of the size desired. Then check the electrical connections. Be sure also that the lens and pressure plates are clean.

Place the film strip in the projector. Then turn on the projector light, and move the film to the first frame. Check for focus, and adjust the framing by moving the hand knob. When focus and framing are satisfactory, turn off the projector light.

If a sound film strip is to be used, the record player must also be made ready. First, detach the speaker and place near the screen. Set the player at the correct speed, usually 33 1/3 revolutions per minute. Start the record on the outside or inside as directed on the record label. For each showing use a new needle.

Now turn on the switch to warm up the tubes. Check volume by playing part of the record. Set the tone control so that the voice is clear and distinct. Then set the "slow-fast" lever for normal pitch. Finally, turn off the switches and place the arm on its support.

The above steps in preparing the equipment should be completed before class.

OPERATING THE EQUIPMENT. For sound film strips the following points must be observed in operating the machine.

First, warm up the tubes and start the motor. Turn on the projector light. Set the playing arm at the correct starting point. Then advance the film strip as the gong or bell sounds.

If a silent film strip is being used, it is only necessary to turn on the projector light and advance the film strip as signaled by the instructor. Any method of signalling that is used must not distract attention from the picture.

Film strips and records are available on many subjects important to navy training.

Sound slide film equipment combines a projector and a record playing device.

Glass slides for daylight blackboard projection make drawings instantly ready for use.

SLIDES

SIZE OF SLIDES. Slides come in two general sizes, either 2″ x 2″ or 3¼″ x 4″. The 2″ x 2″ slide is usually a film mounted in cardboard or glass. The 3¼″ x 4″ slides are always mounted in glass.

HOW SLIDES ARE MADE. For the most part, slides are made by local training activities to meet special needs.

Slides can be made by typing through carbon or cellophane; by drawing with crayon or India ink on etched glass, or by contact printing from photographic negatives. They can also be made in the 2″ x 2″ size from 35mm. kodachrome or black and white film.

ADVANTAGES OF SLIDES. Flexibility in use is the chief advantage of slides. They may be shown singly or in a variable sequence. They can show colors in pictures or diagrams, and can be made quickly to meet the changing needs of the curriculum.

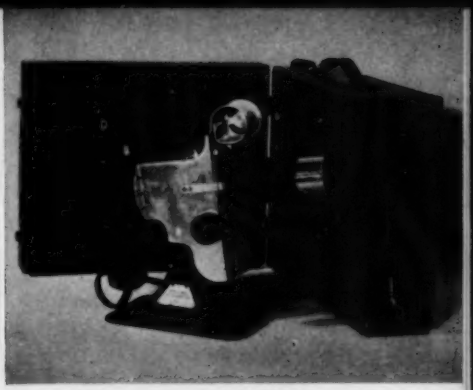
HOW TO USE SLIDES. Slides may be shown by themselves or in connection with a film, a film strip, or other training aid. To be effective, however, slides must be selected to fit the purpose of the lesson.

The instructor should prepare an outline of what he will say and do when each slide is shown. A small number of slides carefully used is better than a larger number used without sufficient explanation. Slides are an aid, not a replacement for the lesson.

All slides should be numbered and marked. A convenient method is to mark a set of slides with a colored (cellulose) tape run diag-

Inexpensive 2" x 2" slides may be made quickly to meet purely local needs. Any camera that uses 35mm. film will do this.

Planned explanation and discussion of the text add interest to the silent film strips.



Silent film strip projectors are light, easily set up, and cast a bright and clear image.

onally across the edges and cut to fit the edge of each slide. The sequence can be determined by looking at the color mark on the edge.

If individual slides are to be shown in irregular sequence, the operator should be given a list of the numbers and the order of the showing.

The 3¼"x4" glass slides may be projected in a light room.

The instructor must be sure to leave a slide image on the screen long enough to allow time for questions and discussion. The use of a pointer will help to focus attention upon selected parts of the picture and enable the instructor to direct the learning more efficiently.

SUGGESTIONS FOR PROJECTING SLIDES. Projectors of three general types are commonly used. They are (1) the film strip projector with a 2″ x 2″ slide adapter; (2) the slide projector in two standard sizes, 2″ x 2″ or 3¼″ x 4″; and (3) the slide projector size 3¼″ x 4″ with an adapter for 2″ x 2″ slides.

In using a slide projector, the instructions of the manufacturer should be carefully followed. An instruction sheet is furnished with each machine. This should be mounted on cardboard and kept with the projector.

Slides should not be left too long in the projector. Seven to ten minutes is the limit for glass-mounted slides, and two to three minutes for cardboard mounts. Color film should not remain in the projector as long as black and white, since strong light fades the color.

It is important that slides be stowed carefully in a place neither too hot nor too cold. Glass-mounted slides must *always* be protected from breakage.

VALUABLE TEACHING TOOLS. Maps, charts, pictures and diagrams are some of the most widely used and valuable teaching tools known to the classroom. Most of them present three-dimensional materials on a flat surface. Thus, they make it possible to simplify mechanisms or ideas in order to bring out essential points.

These training aids are often most effective when they are used in connection with concrete learning experience. Such experiences may be provided by the use of actual equipment, models, or motion pictures.

INDIVIDUAL USE OF PICTORIAL AIDS. By far the greatest supply of charts, maps, photos, and diagrams available to the instructor will be of small size, 8″ x 10″ or less, and reduced in scale. These cannot be demonstrated from the front of the class, consequently they should be used for individual study.

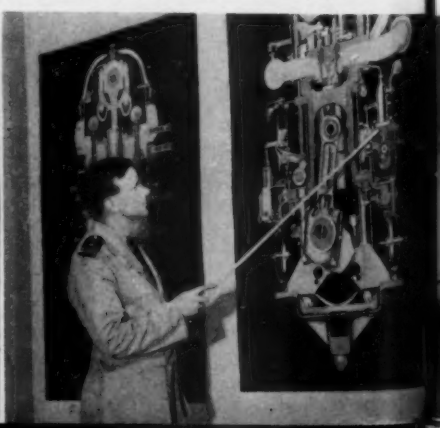
Materials of this type are especially useful because they require active student participation. This results in increased interest and better learning. However, care should be taken that every item is accompanied by captions and full text. If possible, these captions should be placed on the face of the mount, to avoid frequent turning.

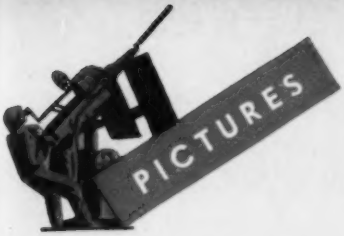
The opaque projector offers the one method of projecting these small-size aids for classroom study. This projector, using reflecting mirrors to produce an image, will accommodate any picture, map, or diagram up to 8 x 10 inches. It will project pictures directly from a book. All images reproduce the color of the original. It will also project small flat objects.

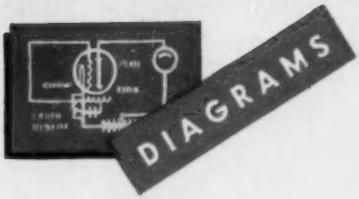
CLASSROOM USE OF CHARTS AND PICTURES. Poster size aids are intended for classroom use. They are usually too big for individual handling and are not large enough for auditorium purposes.

Large maps and charts may be used for bulkhead display or as specific aids to a lesson.

Specially prepared charts clearly show complicated functions of actual equipment.







Instructors should be aware of five rules in the use of this type of material.

1. It must be placed high enough for every student to see easily.
2. Captions, text, and major points must be large enough to be visible to the students in the last row of seats.
3. All graphic devices and symbols should be explained.
4. When explaining a chart, the instructor must stand to the side of the poster, face the class and talk to them instead of to the chart.
5. All other charts or similar type of aids should be covered up or removed to focus attention upon the one in use.

AUDITORIUM AND BULKHEAD USES. Materials of extra large size are usually few in number. They are limited in use because of the difficulty in mounting and handling. They are most successful when used in auditoriums with large groups. They can also be mounted on bulkheads for group study.

Pictures and graphic materials of smaller or poster size may also be used on bulkheads for individual study during out-of-class time. However, when they are used in this way they must be changed frequently to maintain interest.

CAREFUL EXPLANATION NEEDED. Skillful use of pictorial aids requires careful planning. The instructor should examine each item to see if it will contribute to the lesson before he decides to use it. He should next determine which elements are distorted, symbolized, or omitted and plan the necessary explanation for each.

Special care should be taken to supply the idea of motion, size, depth, and color in terms of an experience common to the entire class.

Map and chart projections should be supplemented by a discussion based on a globe. Conventional symbols used in graphs, blueprints, maps, charts, and wiring layouts must be made clear if the training aid is to be effective.

Displays of pictures and posters should be changed often to keep interest alive.

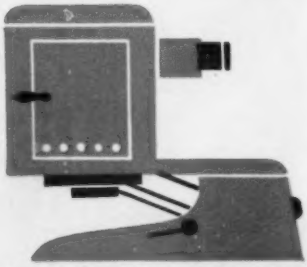
Learning increases when students participate in discussing and developing diagrams.

Efficient use of these aids requires careful preparation by the instructor of the lecture or explanation which will accompany the aids. Experience has proved the value of the following points:

1. Do not bluff to hide your lack of knowledge. If you do not know, say so frankly, and find out.
2. Avoid the use of profanity.
3. Never use ridicule or sarcasm.
4. Never talk down to a class. Respect them and talk up to them.
5. Do not lose patience because a man is slow to get your meaning.
6. Use every opportunity to make the class understand the battle importance of what they have learned.

SUGGESTIONS FOR USING THE BLACKBOARD. Many of the suggestions presented above also apply to the use of the blackboard as a teaching tool. However, a number of additional points should also be kept in mind.

Drawing of large and complicated subjects should be made before the class meets. The chalk should be trimmed square for even lines, colored chalk should be used for emphasis. The use of a straight edge and compass will give better geometric figures. All drawings should be on a large scale, and all captions should be printed large.



Opaque projectors require dark rooms.

The instructor should stand at one side of the drawing, preferably the right if he is right-handed, so it can be seen by the entire class. A pointer should be used with drawings. The instructor should keep a clear relationship between parts.

SUGGESTIONS FOR MOUNTING PICTORIAL AIDS. Small pictures to be handled by the class should be mounted on cardboard, with at least a one inch margin. All captions and text should be placed below the picture.

Poster-size maps, charts, and diagrams should be mounted on linen or wall board. When mounting on a display screen or a bulletin board, tacks or nails should be placed alongside and not through the picture. Pictures should always be arranged in sequence before the class meets, and monotonous display should be avoided when arranging an exhibition of pictures.

USING THE OPAQUE PROJECTOR. Here, too, the pictures should be arranged in sequence before the class meets. The operator should be carefully instructed as to his duties.

Pictures from texts can be projected.

If a beaded screen can be used, better projection will be obtained. The room should be darkened completely and the image should be kept comparatively small for brilliance. Pictures should not be kept in the projector too long.

The instructor should stand beside the screen with a pointer.

RECORDINGS

VALUE OF RECORDINGS. Learning in many subjects takes place best through the auditory sense. Sometimes it is desirable only to *hear* what is to be learned. Seeing is not always necessary.

In such situations the recording is a valuable training aid. It helps to convey information, to develop auditory skills, and to inspire action.

Recordings are used to teach radio code, standard commands, bugle calls, certain communications subjects and foreign languages. They are valuable to inform and inspire men through eye-witness accounts of actual combat.

GETTING READY TO USE RECORDINGS. Like other training aids, the instructor must first become familiar with the recording. He should hear it first to make sure that it fits his purpose. This will also enable him to plan his introductory remarks and to decide upon follow-up activities. When available, training aids guides should be consulted.

Before the class arrives, correct speed, tone and volume should be checked. The loud speaker should be placed to face the listeners. The record player and the operator should be off to one side of the room.

CLASSROOM USE. When the class meets, the instructor should explain contents of the record and the reasons for its use. He should ask the class to find the answers to certain definite questions and listen for specific points.

The recording should then be played through. The instructor may replay the entire recording or such portions as necessary.

Both the class and instructor should listen quietly and attentively. If possible, room and outside noises should be eliminated. Neither students nor instructor should move about.

At the end of the playing period, the instructor should review and summarize the main points. The class should then answer questions previously suggested by the instructor, or take the test included in the Study Guide.

During the discussion, new questions should be clarified. And always, the content of the recording should be related to other class activities.

Navy recordings offer much valuable training material.

MODELS AND ACTUAL EQUIPMENT

VALUE OF MODELS, AND ACTUAL EQUIPMENT. Every Navy instructor should take advantage of every opportunity to use actual equipment. It is one of the most powerful aids at his command. Even obsolete materials may be used when properly evaluated in relationship to modern equipment.

Models have many of the advantages of actual equipment and some additional ones, such as ease of demonstration and movement. The outstanding characteristic of models is the three-dimensional quality. They may also be enlargements or reductions of actual size.

TYPES OF MODELS. Models are generally classed in three groups. First, there are solid models which are used chiefly for external features and recognition; next, there are cross-section models to reveal internal structure; finally, there are working models to demonstrate function or processes. All three types invite student participation and result in increased class interest.

PLOT YOUR COURSE. In planning to use models and actual equipment, the instructor should consider these questions:

1. Does this aid illustrate the point?
2. Is it the most appropriate aid to use?
3. Does it fit the lesson?
4. Is it accurate and up to date?
5. Is the instructor thoroughly familiar with it?

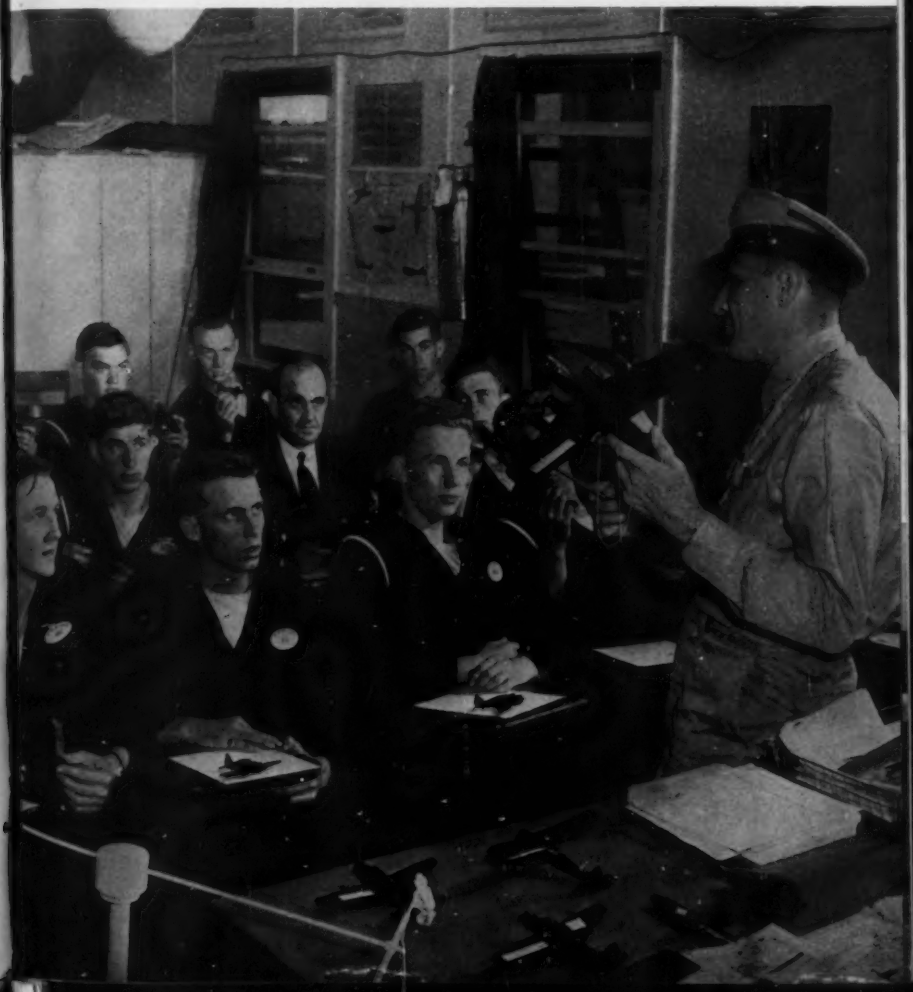
VISIBILITY UNLIMITED. When demonstrating a model or equipment the instructor should make sure that everyone can see it clearly. If the object is small, increase its visibility. This can be done by providing a contrasting background or by illuminating with spotlight or desk lamp.

Visibility can also be increased by placing the object at the instructor's eye level if the class is seated. If the class is standing the instructor should stand on a platform or table.

NOW HEAR THIS. The demonstration must be conducted so that all men can hear what the instructor has to say about the model or equipment. The instructor should talk out to the class, not down to the model or equipment.

He should check at the beginning of the demonstration to be sure that every man can hear every word. The class must also be taught to speak up in discussion so that all members can hear.

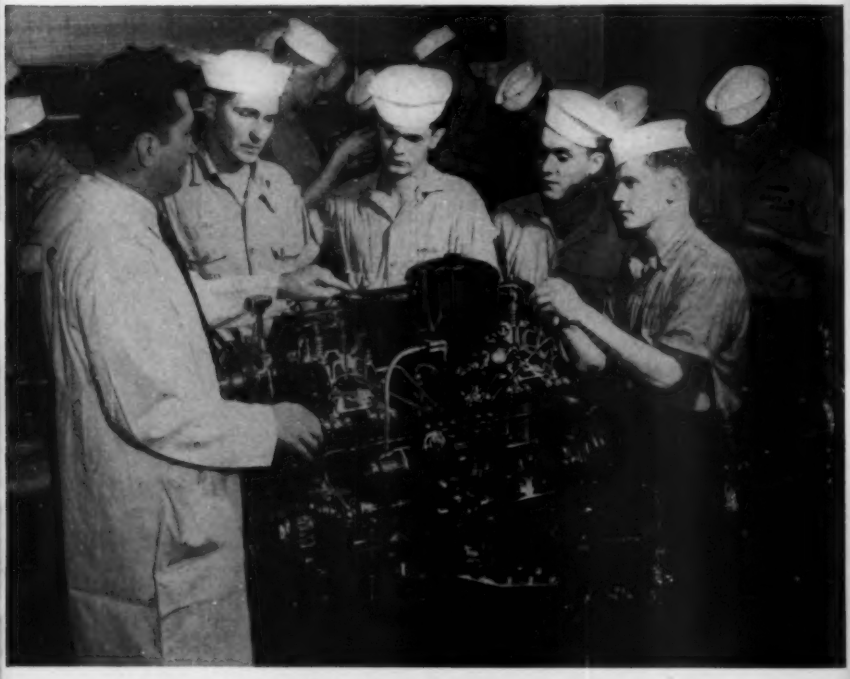
In using very small scale models instructor should be sure that every man can see them.



DON'T FIRE A SALVO. Increased interest and better results can be achieved by demonstrating the materials one by one. The entire demonstration should be completed before permitting the class to handle and manipulate any of the models or equipment.

KEEP FORMATION. Each part should be related to the whole operation when demonstrating complicated equipment. The demonstration should be repeated until the class has a clear understanding of it.

Photographs and diagrams will help to show how each part relates to another and to the whole. They will also show how the model or equipment is used in actual operation.



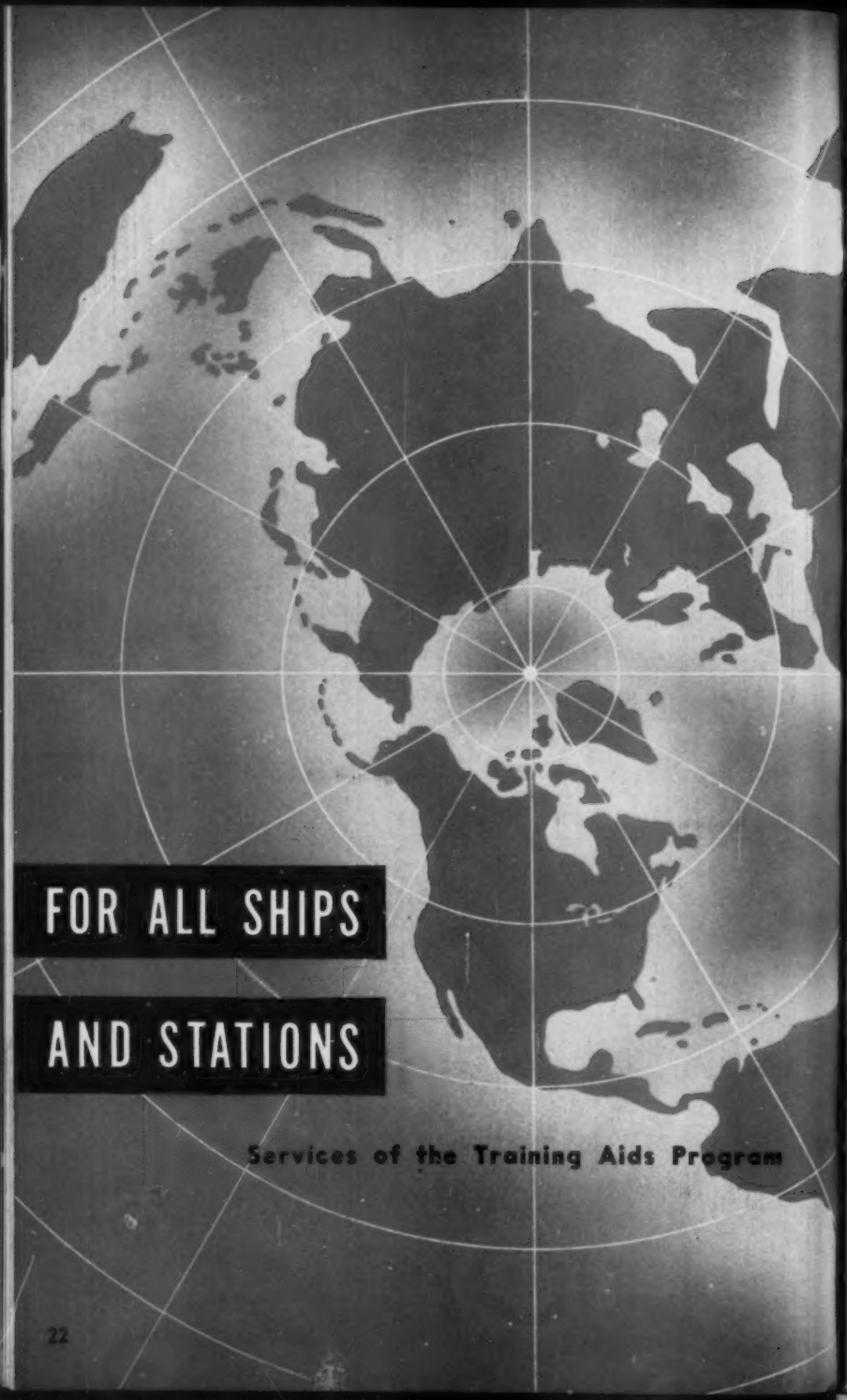
Cut-away models allow students to see and understand the inner mechanism of equipment.

MOPPING UP. By leading a discussion at the end of the demonstration the instructor will help to clinch the outstanding points and to clear up any misconceptions. He can check up by giving a short oral quiz, a written test, or an examination by actual practice.

All models and equipment should be returned to the proper place and person.

Experience with actual equipment aids in developing skills needed in all Navy training.

Combining drawings, charts, and models clarifies mechanical relationships for students.



FOR ALL SHIPS AND STATIONS

Services of the Training Aids Program

AUDIO-VISUAL TRAINING OFFICERS

The Audio-Visual Training Officer has very important duties to perform in the Navy's program of training. One or more of these officers has been assigned to each of the naval districts and to a number of training stations and advanced bases. Their general function is to assist in making instruction more effective through better use of all types of training aids.

Training officers and instructors may secure assistance from the district Audio-Visual Training Officer in regard to such problems as the following:

Selecting and training competent audio-visual officers for each Navy school.

Obtaining films or other training aids, and projection equipment.

Acquainting instructors with aids applicable to their courses.

Helping instructors, through conferences and demonstrations, to use training aids to obtain the best results.

Evaluating the effectiveness of training aids.

Planning needed new films and other aids for specific courses and forwarding these suggestions to the appropriate production units.

Official correspondence directed to the Commandant of the District (Attention: Director of Training), will obtain the desired services of the Audio-Visual Training Officer. An unofficial letter or a telephone call direct to the last named officer may assist in expediting the request.

TRAINING AIDS LIBRARIES

Libraries and branch libraries are located in all naval districts. They may be at District Headquarters or Navy Yards or both of these locations. Their main purpose is to distribute all types of training aids to training activities and to forces afloat according to requests.

They give additional help to instructors by providing preview facilities; training projectionists; loaning, servicing, and repairing films and projectors. They also give technical advice on the installation of equipment. In addition, they may provide projection rooms and equipment for groups from ships in ports.

Training Officers will submit service requests to the commanding office of the activity for forwarding to the library. Official correspondence should be sent to the Commandant of the District (Attention: Director of Training).

Small groups of seamen come to the library for training while ashore.

CATALOG AND FILM PROCUREMENT

The Bureau of Aeronautics publishes a catalog of training films approved for Navy use. A cumulative supplement to the catalog is published periodically. Confidential films are listed in a separate confidential catalog.

Catalogs are distributed to Naval Training Schools, Training Aids Libraries, and activities requesting them. Symbols and serial numbers are assigned to each training motion picture film and film strip listed in the catalog.

Allowance lists of films are also issued for the guidance of various types of training activities, and the procedure indicated therein, with respect to films for permanent custody, should be followed.

When films are requested for permanent custody, by training activities other than Aeronautics, the official correspondence should be made in triplicate to the Chief of the Bureau of Aeronautics, via the Chief of Naval Personnel. The symbol and serial number of the film, the correct title, and the correct address to which the films are to be sent must be given.

Official requests will be made in this manner until such time as the commandant of the naval district directs that requests be routed to the district headquarters.

All naval aviation activities, including Marine Corps and Coast Guard aviation and operating units may obtain prints of training films by directing an official request to the Chief of the Bureau of Aeronautics, Washington, D. C. Functional Training Units should order via their training command; Operating Units via Air Force Administrative Commands; and other activities, directly to the Chief of the Bureau of Aeronautics.

Correspondence procedure for ordering films will be found in the catalog in greater detail and should be followed. The district Audio-Visual Training Officer will assist activities in selecting films from the catalog and in making requests.

EVALUATION

As training aids are distributed, careful appraisal is made of their educational value and technical accuracy. All new aids, are studied by a Joint Board of Review in the Bureau of Naval Personnel, assisted by specialists in the technical fields involved. When curricula are revised, the Board recommends the aids which it considers should be included in each unit. Curriculum outlines are then distributed to the appropriate schools. When these outlines are issued, they supersede previous allowance lists of films.

The instructor will also appraise the aid as he uses it in terms of his own teaching situation. He is urged to keep a running record of his evaluations by which he may improve his use of the aid. His accumulated class experiences will help his Training Officer and especially the Audio-Visual Training Officer in his district to assist other instructors, as their suggestions will in turn assist him. Finally, the Audio-Visual Training Officer will forward fresh ideas and criticisms from the field to the Bureau of Naval Personnel for wider distribution.

This form should be followed when ordering films for temporary custody.

Ex Photo Index No

S/TS/CR/pcp

U. S. NAVAL ARMED GUARD CENTER
First Avenue and Fifty-Second Street
Brooklyn, N. Y.

Enlistment or Induction

From: CO.

(Date)

To: COMTRENEY, Attn: Director of Training.

Subj: U.S. Navy Training Films - request for.

Ref: (a) Catalogue of U. S. Navy Training Films

1. It is requested that one print of each of the following training films, as listed in reference (a), be forwarded to this activity for temporary custody; motion pictures to be supplied in 16 mm. width:

MN-1552 "War On The Seas"
MN-[illegible] "Ships Of The U. S. Navy"
MN-[illegible] "The Standard Landing Mat"

(Signature)

Ex Photo Index No

SSG-1/CR/pcp

U. S. NAVAL ARMED GUARD CENTER
First Avenue and Fifty-Second Street
Brooklyn, N. Y.

Enlistment or Induction

From: CO.

(Date)

To:
Via: (1) Chief, Buker.
(2) COMTRENEY.
(3) Chief of Naval Personnel.

Subj: U. S. Navy Training Films - request for.

Ref: (a) Allowance List ltr. (date)

1. It is requested that one print of each of the following training films, as listed in reference (a), be forwarded to this activity for permanent custody; motion pictures to be supplied in 16 mm. width:

MN-75 "Flashing Light Signals"
MN-1400a "Work 20 mm. Antiaircraft Gun"
SS-2178 "Shoot"
SS-370 "Man Overboard Emergency Drill"

2. It is further requested that one print of each of the following training films not listed in reference (a), be supplied in 16 mm. width for permanent custody:

SS-377a "The Storage Battery - Part I"
MN-18 "The Diesel Engine"

3. The training films requested in paragraph 2 are needed because (state reason).

4. It is further requested that these films be addressed to:

The Commanding Officer,
U. S. Naval Armed Guard Center,
First Avenue and Fifty-Second Street,
Brooklyn, N.Y.

(Signature)

This form should be followed when ordering films for permanent custody.

PROCUREMENT OF PROJECTION EQUIPMENT

Projection equipment can be procured by directing an official request from the commanding officer of the training activity to the proper source:

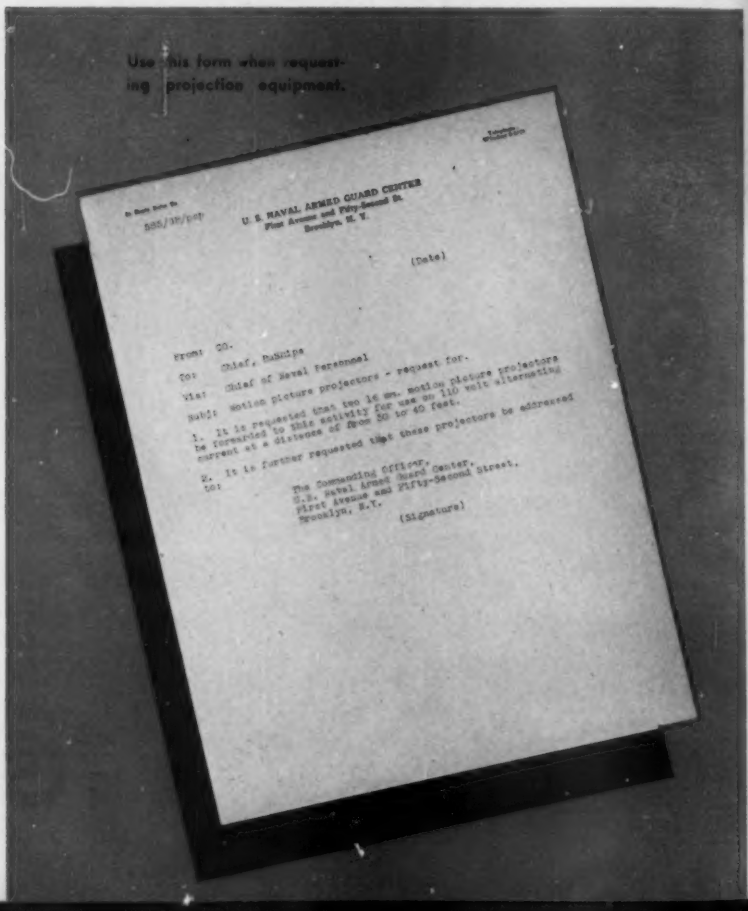
Requests for 35mm. sound strip, 16mm. sound film, lantern slide, and opaque projectors should be directed to the Chief of the Bureau of Ships via the Chief of Naval Personnel.

Requests for screens should be directed to the Supply Officer in Command, Navy Supply Depot, Mechanicsburg, Pennsylvania, or Oakland, California.

Information regarding the procurement of spare parts for projection equipment may be obtained from the Training Aids Libraries.

Combat activities such as air and forces afloat are given priority in delivery over shore based training activities in the pattern of delivery.

Emergency needs can frequently be met through the Training Aids Libraries which are supplied with both 16 mm. motion picture and 35mm. strip film projectors. This equipment is often loaned to training activities until such time as permanent projection equipment is delivered. Training aids libraries and stock pools are being established as rapidly as facilities permit to aid in the delivery of needed equipment.


Use this form when requesting projection equipment.
U.S. NAVAL ARMED GUARD CENTER
First Avenue and Fifty-Second St.
Brooklyn, N. Y.
(Date)
From: CO.
To: Chief, BuShips
Via: Chief of Naval Personnel
Subj: Motion picture projectors - request for.
1. It is requested that two 16 mm. motion picture projectors be forwarded to this activity for use on 110 volt alternating current at a distance of from 30 to 40 feet.
2. It is further requested that these projectors be addressed to:
The Commanding Officer,
U.S. Naval Armed Guard Center,
First Avenue and Fifty-Second Street,
Brooklyn, N.Y.
(Signature)

Instructors should meet when opportunity offers to discuss mutual problems.

INSERVICE TRAINING OF INSTRUCTORS

Helping instructors on the job to learn how to use audio-visual aids is an important part of the training aids program of the Navy. This is being accomplished in a number of ways. Audio-Visual Training Officers hold group conferences for instructors in the various naval districts and training activities. More frequently, Audio-Visual Training Officers will work individually with the training officers and instructors in the various training activities of the district.

Of particular value to instructors is the *TraDiv Letter*, a monthly publication issued by the Training Division, Bureau of Naval Personnel, for the purpose of improving naval training. The *TraDiv Letter* describes developments in training aids, and presents a number of articles each month on the training methods employed by various naval training activities.

Requests for assistance in the training of instructors in the use of audio-visual aids should be directed to the Commandant of the District (Attention: District Training Officer), or to the Commanding Officer of the training activity. These requests may be forwarded to the Training Division, Bureau of Naval Personnel, when desired.

TRAINING AIDS GUIDE

Prepared by

BUREAU OF NAVAL PERSONNEL
TRAINING DIVISION
TRAINING AIDS SECTION

NAVY DEPT. ★ WASHINGTON, D. C.

Swimming Through Burning Oil and Through Surf

TITLE OF FILM

Size and type	16 mm. sd.
Catalog No.	MG 2763
Running time	10 min.
Photography	b and w

NAVPERS 12001

Purpose The purpose of this film is to show how to jump from a ship into burning oil, how to swim through the burning oil to safety, and how to swim through dangerous surf to shore.

Content This film is divided into two parts: (1) Swimming Through Burning Oil, and (2) Swimming Through Surf. It points out that one can swim safely through burning oil and through surf although special tactics are required.

A sailor demonstrates that ordinary rules cannot be followed. Before jumping from the ship he removes his life-jacket and shoes so he may sink rapidly and maneuver himself away from the flames. His clothes are left on for protection from the burning oil. He jumps feet first while holding his nose, and protecting his face with his arms.

As he rises to the surface the sailor beats away the flames with a circular thrashing motion. He then turns his back to the wind, breathes, ducks, and swims under the water and into the wind. He remains under water only for as many counts as he knows his safe limit to be. Coming to the surface again, he rises as high as possible to get a breath of clear air, remembering to thrash his arms.

Seeing several of his shipmates, he joins them because, together, they can keep a larger space cleared. They will also be more easily spotted by a rescue ship. When in the clear, he continues to swim to windward and away from the flames, taking no chances.

When the distance to be covered is too great to attempt without a life-jacket, it is emphasized that the same principles apply when using a life-jacket. The main points in the first part of the film are reviewed as (1) thrash the surface, (2) breathe with your back to the wind, (3) swim into the wind.

In part 2, another sailor equipped with life-suit is seen swimming through a rough surf near shore. He removes his life-suit, allowing water to enter it to make removal easy. A life-jacket keeps him up as the suit is removed.

After a brief rest and a study of the situation confronting him, the swimmer selects the smoothest part of the shore, surveys the waves and tries to avoid the large ones. The life-jacket too is now removed to permit underwater swimming.

The swimmer then pulls for shore, vigorously when the swells are underneath, and resting between swells. When the waves threaten to break over him, he turns and faces them, ducks two or three feet under the surface and lets their full force pass over him. The film advises against attempts to ride the breakers. When the beach is felt underneath, the survivor lets the small waves help him in. The main points are reviewed at the conclusion of the film.

When swimming through surf to shore, avoid places like this. Study the situation first and head for the smoothest and safest spot.

Join a group of shipmates if possible. Together you will be able to clear a larger space. You'll also be more easily spotted.

TRAINING AIDS GUIDES

The Training Aids Guides are designed to help the instructor make better use of training aids. They will make his teaching job easier, and when properly used, will greatly increase the value of the aid.

In these guides the *Purpose* of the film is outlined in one simple concise statement. The *Content* briefly describes the action and dialogue contained in the training aid. Major concepts to be emphasized are grouped under *Points to Look For*.

An objective *Test* consisting of 20 multiple-choice and true-false questions is included to serve two purposes: (1) to show the student the extent of his knowledge of the subject, and (2) to show gain in knowledge by using it both as a pretest and a retest.

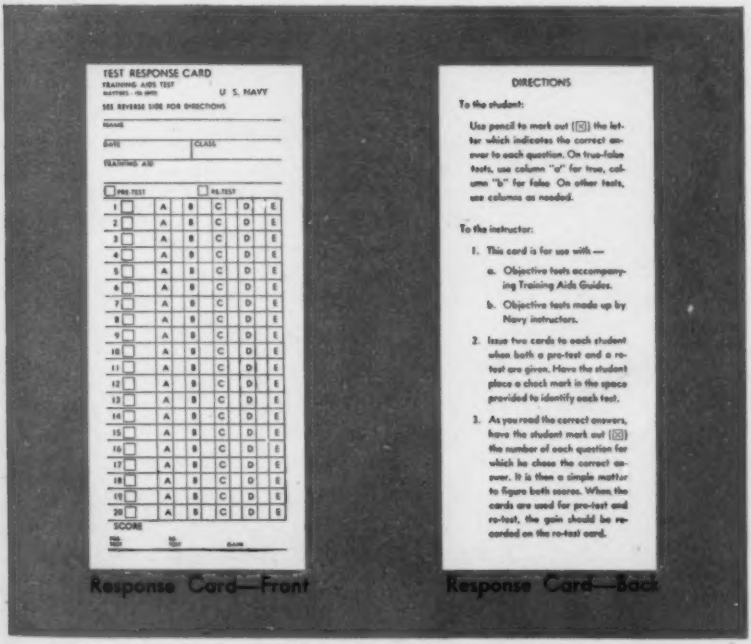
In general the test is designed as a teaching device. It is recommended that the test be mimeographed. If it is given orally, the instructor should read each question twice, speak slowly and distinctly, and avoid influencing the answer by voice inflection.

The guide also includes suggested *Follow-up Activities* which could supplement the film by providing additional experiences, clarifying ideas that are not fully understood, and "clinching" the concepts by approaching them from as many angles as possible.

Training Aids Guides are distributed through Directors of Training in each naval district. Instructors may obtain them by making request to Audio-Visual Training Officers.

Response Cards are being procured in sufficient quantities so that every student may be given a card for each test. The card is of simple construction. The student indicates his answer to each question by putting a mark in the square provided for that purpose beside the number of the question. If the instructor wishes to give a pretest, and then a re-test, he should order a sufficient number of cards so that he can distribute a separate card for each test.

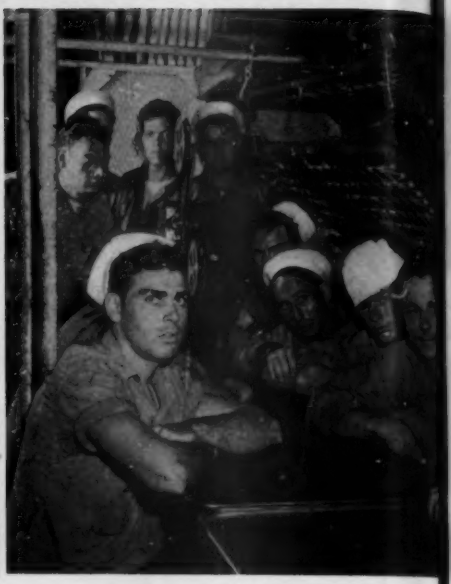
The test card is easily scored. The student marks off the number of each question correctly answered.


TEST RESPONSE CARD
U. S. NAVY
SEE REVERSE SIDE FOR DIRECTIONS
NAME
DATE
CLASS
TRAINING AID
PRE-TEST
RE-TEST
SCORE
DIRECTIONS
To the student:
Use pencil to mark out [X] the letter which indicates the correct answer to each question. On true-false tests, use column "a" for true, column "b" for false. On other tests, use columns as needed.
To the instructor:
1. This card is for use with —
a. Objective tests accompanying Training Aids Guides.
b. Objective tests made up by Navy instructors.
2. Issue two cards to each student when both a pre-test and a re-test are given. Have the student place a check mark in the space provided to identify each test.
3. As you read the correct answers, have the student mark out [X] the number of each question for which he chose the correct answer. It is then a simple matter to figure both scores. When the cards are used for pre-test and re-test, the gain should be recorded on the re-test card.

Response Card—Front

Response Card—Back

Officers in the wardroom preview training aids to set up an instructional program.



Off watches see late training film subjects even in limited crews quarters.

SERVICES FOR FORCES AFLOAT

All of the services and equipment of the Training Aids program are available to the Forces Afloat. Despite limitations of space and time many training officers afloat are using audio-visual materials successfully.

In most naval districts an Audio-Visual Training Officer has been designated to serve the Forces Afloat. It is common practice for him to visit a ship shortly after arrival to learn how to best serve its training needs.

This officer will be able to offer the following assistance:

Furnish film, film strips, and other aids for use on board ship.

Suggest suitable training aids to meet problems of instruction aboard ship.

Arrange for film previews.

Arrange motion picture and film strip showings at locations and at times convenient to the ship's personnel.

Provide information on securing equipment and aids for permanent assignment to the ship.

Suggest sources for the adjustment and repair of all audio-visual equipment.

In addition, the Audio-Visual Training Officer is prepared to help ships' officers plan a program of training which will continue beyond the time when the ship is in port.

CARE AND STOWAGE OF EQUIPMENT

Training aids should receive reasonable care and adequate stowage in order to give their best service. Where any considerable number are in use, they should be put in charge of a qualified enlisted man. They should be free from dust at all times.

Projectors contain service manuals which give instructions for maintenance. Follow the directions for oiling, using no more and no less than specified. If a breakdown occurs, if a general overhaul is necessary, or if the services of an experienced technician are required, the equipment may be sent to the district Training Aids Library in exchange for a similar item on temporary loan.

Activities to which training aids are assigned for permanent custody should provide ample space for proper stowage. The stowage space should be well ventilated, and its temperature kept close to 70°. It should be fitted with shelves, racks or stands for the stowage of films, and large shallow drawers for charts and other flat material.

There should also be available some form of index system on which records may be kept.

Metal cabinets or racks, though more convenient, are not essential for 16mm. film, since such film does not constitute a fire hazard. Stowage of confidential or secret materials must follow the prescriptions of Articles 75½ and 76 in Navy Regulations.

Activities should provide for orderly and secure stowage of training aids materials.

PLANNING AND PRODUCTION

The Training Division of the Bureau of Naval Personnel is responsible for the development of new training aids.

A recent adjunct of this Division is the U. S. Naval Training Aids Development Center in New York City. While this activity is physically in the Third Naval District it is an integrally functioning part of the Bureau of Naval Personnel. Correspondence from personnel interested in training should be addressed via official channels to the Bureau of Naval Personnel and not to the center.

The Training Aids Development Center contains (1) a reference file of training aids collected from various sources; (2) facilities for conference for specific purposes; (3) drafting, design, and shop facilities for the development of pilot models and graphic materials.

These facilities are employed in the systematic development of training aids for various purposes. The function of the Center is to synchronize as constructively as possible knowledge of subject, graphic and presentational techniques, and effective educational use.

Training aids under development will normally be automatically distributed to training activities which can appropriately utilize them. If such an activity finds that it has been omitted on initial distribution it may request from the Bureau of Naval Personnel such aids as it considers it can effectively use.

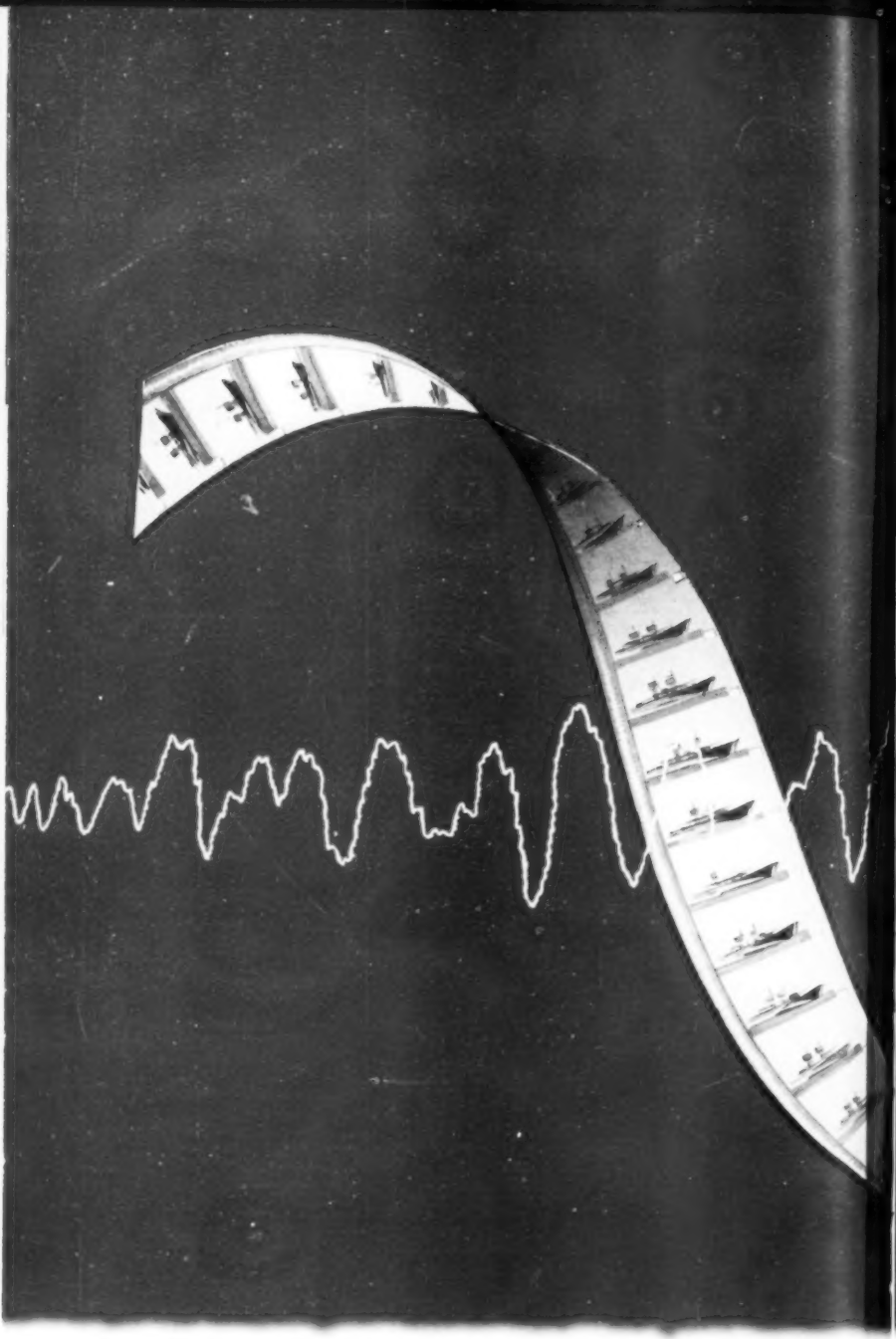
It is not intended to distribute a catalog of aids developed at the center to each training activity, but it is intended that the Training Aids Libraries shall have this information available.

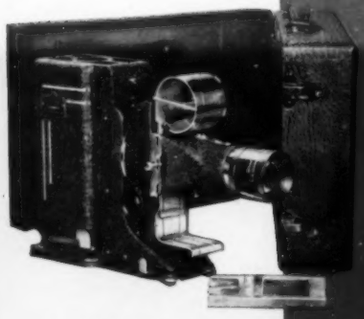
Information about the developments at the Center will appear from time to time in the TraDiv LETTER.

It will be the responsibility of the Audio-Visual Officers to keep the activities in their areas informed of the developments at the Center.

Constructive suggestions for the origination, development or improvement of training aids will be welcomed by the Bureau of Naval Personnel. Copies, photos, or samples of all training aids created locally should be forwarded to the TADC, in order that local ideas may be developed into effective aids for use of the Naval Training Program as a whole.

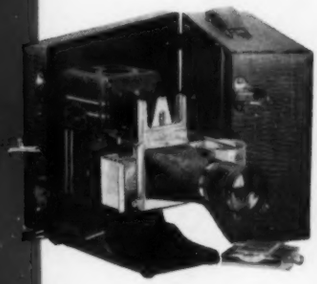
USN
BUREAU OF NAVAL PERSONNEL
TRAINING AIDS





300 WATT MODEL AAA, TRI-PURPOSE Shows 2" x 2" slides, single and double frame slidefilms to groups of all sizes.

300 WATT MODEL AK MINIATURE PROJECTOR Shows 2" x 2" slides exclusively, either Kodachrome or black-and-white.



150 WATT MODEL DD, also TRI-PURPOSE for audiences of average size.

SVE

Projectors
NOW AVAILABLE

These projectors for slides and slidefilms are playing a vital role in the swift training of war workers and our fighting forces. Recent releases by the War Production Board make some S.V.E. Projectors available for essential civilian uses. These S.V.E. Projector Models include the Tri-Purpose AAA and DD; the AK Miniature for 2″ x 2″ slides; and Models Q, F and G, which project slidefilms only and are useful for industrial and commercial purposes.

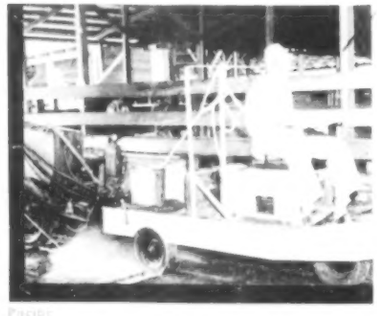
Details regarding the procedure for purchasing this equipment will be furnished promptly on request.

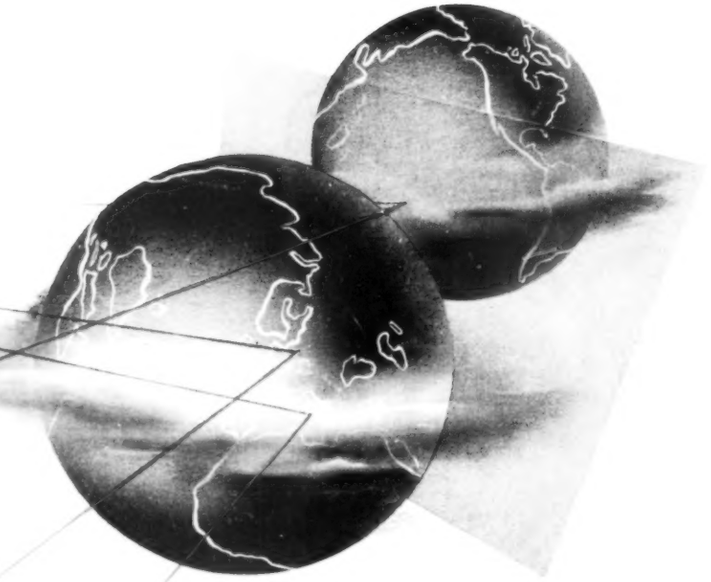
BUY MORE WAR BONDS

SOCIETY FOR VISUAL EDUCATION, Inc.

100 EAST OHIO STREET • CHICAGO 11, ILLINOIS

BUDA





. . . ON ALL FRONTS

Wherever engines are working in this war, there Buda engines are working well. Buda performance in this war is due first and foremost to exceptional integrity of product—but when the final record is unrolled it will be found that this reputation has been safeguarded by the foresight with which training assistance has been provided in the satisfactory use of Buda all-purpose Diesel and gasoline engines.

To this essential training, ensuring better performance of Buda products on all fronts, it is our esteemed privilege to contribute.

NAVY

The **JAM HANDY** *Organization*

Visualizations • Educational Sound Pictures • Training Assistance • Slidefilms

★NEW YORK	★WASHINGTON, D. C.	★DETROIT	★DAYTON	★CHICAGO	★LOS ANGELES
1775 Broadway	Transportation Building	2900 E. Grand Boulevard	310 Talbott Building	230 N. Michigan Avenue	7046 Hollywood Boulevard
COlumbus 5-7144	District 0611	2450	ADams 6262	STAte 6757	HEmpstead 5809